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ORIGINAL ARTICLES.

DECORTICATION OF THE LUNG FOR CHRONIC EMPYEMA.*

BY GEORGE RYERSON FOWLER, M.D.,

OF BROOKLYN, N. Y.;

SURGEON TO THE METHODIST EPISCOPAL HOSPITAL; SURGEON-IN-CHIEF
TO THE BROOKLYN HOSPITAL; SENIOR SURGEON TO THE
GERMAN HOSPITAL.

DECORTICATION of the lung is a term applied to designate a procedure intended to relieve the lung from its environment in cases in which expansion is prevented or interfered with by the presence of a greatly thickened pleural covering. The first operation of this kind on record was done by the writer October 7, 1893¹, and reported in the *Medical Record* Dec. 30, 1893. A short abstract of the case is herewith given:

The patient, a female aged thirty-five years, was admitted to my service at the Methodist Episcopal Hospital with a history of having suffered from an intractable chronic empyema of the right side following an attack of grip nearly two years previously. Examination showed a sinus with a depressed external opening lined with integumentary tissue, leading directly inward from the interspace between the fifth and sixth ribs in the axillary line for the distance of about five inches, at which point it terminated in a small cavity. This sinus was the site of a tube drainage which had been instituted two years previously. Many attempts had been made during this time to dispense with this tube, but without success, this invariably leading to a reaccumulation of the purulent fluid and an accession of febrile symptoms. The previous history of the case showed that many attempts had been made to effect obliteration of the cavity and closure of the sinus, including persistent antiseptic irrigation, curetting and stimulating injections, but without result. The physical signs showed that the lung was retracted to the costopulmonary angle above the third rib, the left lung doing practically all the work, with consequent dyspnea upon exertion.

On October 7th an elliptical-shaped incision was made to include the orifice of the sinus, the soft parts cleared, and about $3\frac{1}{2}$ inches each of the fifth and sixth ribs removed. The greatly thickened costal pleura was then revealed firmly attached to the chest-wall and through which the sinus passed in the direction of the median line of the body. Commencing at the site of the opening in the chest-wall, the pleura was isolated by blunt dissection in the direction of the diaphragm

until the latter was reached. It was then peeled off from the latter until its limit toward the median line was reached, where it was found to rest against the displaced pericardium, from which, after much difficulty, it was finally detached. This dissection was greatly impeded by the movements of the diaphragm, as well as those of the heart. The dissection was completed by lifting the mass and finally detaching it from the lung above. Considerable expansion of the lung followed at once, and in the course of twenty-eight days this was so far complete that the normal vesicular murmur was present to the level of the seventh rib. The heart had so far receded that its apex beat appeared well to the left of the sternum. This patient is still living and apparently in the best of health. Save for a slight sinking in the chest-wall at the site of the resection of the ribs, there is nothing to suggest the previous existence of an empyema.

The conception of this method of curing an old empyema was entirely original with myself, and was designed for the twofold purpose of permitting, by a formal and radical removal of the greatly thickened and adherent pleura, of the expansion of the lung, as well as the obliteration of a suppurating cavity the existence of which was a serious menace to the patient's health. I was not then aware that Delorme, on April 3, 1893, before the Congrès Française de Chirurgie, had reported some experiments made upon the cadaver with the view of determining the feasibility of such an operation. Delorme's first operation upon the living subject, however, was not performed until January 20, 1894, and was reported before the Académie de Médecine and published in the *Presse Médicale*, Paris, 1894, p. 97, all three of which events took place after the report of my case appeared. In a subsequent study of the subject² Delorme does not carry his claim farther back than 1894, and makes no formal claim to priority; although, in the last-named communication, he again reports his own case as "Case I," reporting mine as "Case II," suppressing the date of both the operation and report of my case.† Delorme's case succumbed to "cerebral and abdominal tuberculosis, the presence of which was unsuspected," but the operation served, as stated

† The entire credit of this operation is given to Delorme in the most recent publication upon the subject, that of Augros, entitled "Traitement de l'Empyème Chronique par la Decortication du Poutmon (Operation de Delorme)." No mention is made in this paper of the dates of my previous operation and report, although the date of Delorme's first operation is specifically mentioned in the following words: "M. Delorme eut l'occasion d'appliquer sa méthode le 20 janvier, 1894, et il en rendait compte en ces termes quatre jours plus tard à l'Académie de médecine." Delorme in reporting his case before the Académie de médecine in January, 1894, used these words: "Le courant, en présence de M.M. les médecins principaux Dieu et Nogier, des stagiaires du Val de Grâce, de M.M. les médecins-majors Gigon, Formegoi, avec l'assistance précieuse de M. le professeur agrégé Mignou, du médecin-major Marcus, etc., je pratiquai à ma clinique l'opération suivante."

* Presented to the Section on Surgery and Anatomy, American Medical Association, June 6, 1901.

by Delorme, to illustrate the practicability of decortication.

Delorme records 16 subsequent cases, making 18 in all.[†] Of these one was by Lamotte, a Belgian surgeon; one by Lardy, of Constantinople; one by Sorel, of Havre; one by Djemil Bey, of Constantinople; two by Tavel, of Berne; one by Reclus; three by Guinard; one by Boeckel, of Strasburg; one by Girard, of Berne. In a footnote he refers to two additional cases, one by Roux, of Lausanne, and one by Girard, of Berne. The remaining two cases of the 16 were operated upon by Delorme himself.

The most striking case in Delorme's list is that attributed to Djemil Pasha, which was reported to the Medical Society of Constantinople in 1895. The patient was a "whirling dervish" who had suffered for five months with an extensive pyopneumothorax due to a penetrating wound. The fifth, sixth and seventh ribs were resected and the lung liberated from its environment, after which it immediately refilled the corresponding half of the thoracic cavity. The patient was discharged cured on the twenty-sixth day. Three months afterward he was found to be perfectly well, and able to resume the dance or "whirling" ceremonial of his order.[§]

Augros, in his paper, follows Delorme's list accurately and gives three additional cases, one occurring in the service of M. Gangolphe, the details of which are supplied by Siraud, his adjunct; and another by Vinay and Jaboulay, and a third by Delagenière.

Dr. Alex. Hugh Ferguson, of Chicago, presented a paper in the Surgical Section of the American Medical Association at the forty-seventh annual meeting in May, 1896, and which was published in the *Journal of the American Medical Association* for January 9, 1897, upon "Thoracoplasty in America and Visceral Pleurectomy, with Report of a Case." He speaks of my operation as the pioneer visceral pleurectomy and refers to three other cases, those of Delorme and Reclus (already referred to) and Gallet (*La Clinique*, June, 1895), and adds one of his own, which was done on December 12, 1895. A careful study of the pathologic changes in this case was made by Dr. Ferguson.

Cestan, in his voluminous work[‡] devotes a chapter to decortication, and speaks of the operation as the most recent and interesting contribution to the surgical treatment of empyema. He states that, in its aim it is superior to all other resources. He gives the credit of the new procedure

to Delorme upon the basis of the latter's contention that the active expansion of the lung should play a part in the treatment of certain cases of empyema, acknowledging, however, that my case was operated upon and reported prior to Delorme's. Jordan, in an article entitled "Erfahrungen über die Behandlung veralteter Empyema"[§] reports a case, the first that had been done in Germany. The patient had entirely recovered in 10 weeks.

Verneuil, in an article entitled "La Chirurgie Pleuro-Pulmonaire"[§] refers to Gallet's two cases, citing one as terminating favorably, and one in which an unsuccessful result was reached. Reference is likewise made in this article to the fact that Gallet, in deciding whether or not to operate, is "actuated by radiographs of the lungs." Verneuil likewise states that König and Duplay have both had practical experiences with the operation, and are not disposed to look upon it with favor. Nevertheless, Kocher recommends decortication in the last edition of his "Chirurgische Operationslehre" 1897, and in Duplay's article (*Des Fistules Pleurales Succedant a L'Empyème*)[§], while he alludes to the operation of decortication only to condemn it, he gives no cases of his own or others.

In a case of empyema of traumatic origin reported by Cestan as having been operated upon by Veslin, the operation was done sixteen months after the injury. In the interval a thoractotomy had been done, which resulted in a fistula, and eight months later Estlander's operation with curettage was followed by no result. The attempt at decortication was only partially successful, the upper third being impossible of detachment. The thoracic flap sloughed, leaving a large opening with exposure of the lung. In the course of the following six months the defect left by the slough had nearly closed and a good functional result was said to have been obtained. Gross[§] attempted the operation in two cases, but the lung and pleura were so fused together that it was found impossible to complete the operation. In one of his cases, he partly removed the pleura, but it remained adherent wherever pleuritic bands had formed. Pascale[§] read a paper at the Congress of Italian Surgeons for 1899 upon decortication of the lung. The paper is largely a résumé of the works of Delorme, Cestan and others. Pascale added five new cases operated upon in 1897 and 1898. Of these four were completely successful; in one a pleural fistula remained. In the discussion upon Pascale's paper Romans stated that he had performed the operation several times, and that it did not always succeed. He cites one case in which expansion of the lung did not follow decortication. Sirot likewise reported two personal cases, in which the results were favorable.

The following additional case is introduced, although the result so far as the function of the lung is concerned cannot be as yet stated. The operative features offer some points of

[†] In Cases X. and XII. of Delorme's list the attempt to detach the visceral pleura failed. The first of these was one of Delorme's cases in which Estlander's operation was first performed and an attempt made to decorticate. This was unsuccessful, however, and Schede's operation was finally done. The patient was not cured. The second case was that of Bonilly, who, in a personal communication to Delorme, stated that he had operated once, but was unable to detach the visceral pleura. No further details of this case are given. These are omitted, as decortication was not done either by visceral pleurectomy or visceral pleurotomy.

[§] Those who have witnessed the Sem'a of the Mevlevi or Whirling Dervishes, in which a pirouette, lasting for hours, is performed in a circle all around the khanele or ceremonial hall of the convent, with closed eyes and arms outstretched, accompanied by the cries of the dancers in a chant which, together with the whirling, becomes more and more violent as the dance proceeds, will appreciate the completeness of the recovery in Djemil Pasha's case.

special interest, however, and will, perhaps, furnish a sufficient reason for what might otherwise be deemed a premature report:

A male, aged nineteen years, was admitted to the Brooklyn Hospital for an empyema of several weeks' standing. Ordinary tube drainage following the removal of about an inch of rib was instituted. At the end of four weeks the cavity was still discharging copiously, with no disposition on the part of the lung to re-expand. At this time an Estlander's operation was performed, four inches each of the sixth and seventh ribs being removed. At the end of another month it was found that, while the anterior portion of the chest-wall had fallen sufficiently below the normal level to partially obliterate the cavity, the posterior portion had not yielded, and a large cavity still remained, with a dense transverse partition consisting of the greatly thickened visceral pleura forming a floor upon which the base of the lung rested, and which prevented it from descending below the level of the third rib. Posteriorly the visceral pleura was firmly attached at a somewhat higher level than anteriorly, which left a pus cavity the size of a man's fist at this point. Decortication of the lung with total pleurectomy was performed on May 30, 1901. The condition of the patient would not permit of the administration of a general anesthetic for the length of time required for so extensive an operation as would probably be required in the case. In addition to a high degree of leucocytosis and a low hemoglobin percentage and red blood-cell count, the patient was suffering from mitral insufficiency and a high grade of cardiac dilatation. It was, therefore, decided to employ spinal cocainization in the case. The patient proved rebellious, however, and refused to remain quiet for the spinal puncture and injection. To remedy this difficulty, after cocaine infiltration of a small area at the site of the intended puncture, a few drops of chloroform (15 drops in all) were administered, and while under its influence the spinal injection was made, one grain of the cocaine sterilized with chloroform and dissolved in forty minims of sterilized water being employed. Immediately following the injection the head of the table was lowered to facilitate the passage of the cerebrospinal fluid mingled with the cocaine solution to the upper portion of the spinal canal. The analgesic effects of the cocaine injection were most pronounced, both as regards the completeness of the analgesia and its distribution. In a few minutes all parts of the body below the level of the clavicle were absolutely insensitive to pain and the operation was begun.

An obliquely placed, elliptical-shaped incision six inches in length, running parallel with the site of the previously resected sixth rib, and enclosing a large fistulous opening and adjacent granulating surface, was made.

At the anterior extremity of this incision, a vertical cut two and one-half inches long was made in an upward direction, and from the posterior extremity a similar cut was made in a downward direction. The two three-cornered flaps thus marked out were dissected from the chest-wall, including the entire thickness of the latter to the ribs. The already existing opening in the bony wall of the chest was then enlarged by the resection of five inches of each of the third, fourth, and fifth ribs. The attempt was made to dissect off the visceral layer of the pleura first, but this was found to be so intimately adherent that it was left until the last, and the costal and diaphragmatic pleura removed first. This was accomplished by the aid of the fingers and blunt scissors without great difficulty, when the strongly adherent costal attachments of the visceral pleura having been loosened, the lung expanded sufficiently to bring the parts well within reach and enabled me to readily dissect the visceral layer of the greatly thickened pleura from the lung, after which the entire mass came away. The two three-cornered flaps were then brought into place and sutured with the exception of a small opening left anteriorly through which was led the projecting end of a gauze tampon which was lightly packed between the base of the lung, which by this time nearly filled the entire right chest, and the diaphragm. The operation occupied one hour and a quarter. The analgesia lasted up to the time of the application of the last three sutures, which the patient felt, otherwise the entire operation was absolutely painless. He left the table in excellent condition, considering the magnitude of the operation, with a pulse below 100 and only suffering moderately from shock. Up to the present time the patient has pursued an uneventful progress toward recovery.

In reviewing the literature of the subject it has developed, so far as my researches go at this time, that the term "decortication of the lung" has been applied to all cases in which the attempt has been made to release the lung from its thickened pleura for the purpose of promoting its expansion. A further and most important purpose is that of removal, as completely as possible, of the entire thickened and degenerated pleura with its septically involved structures, in order to insure rapid healing and early obliteration of the empyemic cavity. The first of these indications may be sometimes fulfilled by visceral pleurectomy with more or less detachment of the adherent and thickened pulmonary membrane, and relatively good results may be obtained by this procedure, even in cases in which the lung does not fully expand at first. So far as I am able to gather this was the method followed by Lambotte, Jordan, Sorel, Djemil Pasha and Bonilly. On the other hand, my own case, Delorme's first case, the two cases

of Reclus, the case of Ferguson, those of Tavel, as well as two subsequent ones of Delorme, were instances of true visceral pleurectomy. That rapid healing and complete recovery may take place with either of these procedures is shown, first, by my own case, in which a prompt operative, as well as functional, result was obtained in four weeks following complete removal of the remains of the pleural membrane; and, second, by Djemil Pasha's case, in which the same prompt result following what, from the description, seems to have been a visceral pleurotomy with simple detachment. It should be stated, however, that in all the cases in which visceral pleurectomy was indubitably performed and recovery took place, both rapid healing and complete re-expansion of the lung was accomplished, while in those instances in which visceral pleurotomy with partial detachment seems to have been done, so far as can be ascertained from the records of the cases, and which survived the operation, four failed of complete expansion and in one the fistulous track remained unhealed. Nevertheless, it cannot be denied that cases will arise, as shown by a study of the cases reported by perfectly competent operators in which difficulties may arise impossible to overcome in attempts to remove entirely all thickened pleura, or even detach the visceral portion. These difficulties are unquestionably increased by the presence of tuberculous deposits in the lung tissue adjacent to or involving the pleural covering. Should these conditions present themselves, it is advisable to discontinue the effort to release the lung.

The indications and contra-indications for the operation, save those which relate to the condition of the chest organs discoverable by physical examination, can scarcely be definitely stated before opening the chest. The thickened pleura may be so intimately adherent as to be impossible of detachment, or it may be detachable and the lung incapable of expansion. Further, the pleura may be peeled off at the visceral reflection, while conditions may be present rendering its complete removal unjustifiable or impossible. Finally, in the most favorable cases, decortication and complete removal may be effected with comparative ease. Upon incising the visceral reflection, if the lips of the incision gape the conditions are favorable for complete detachment of the visceral portion at least, and the effort should be persisted in, even if no expansion of the lung takes place, in the hope that this will take place later on. After detaching the visceral layer, if the hemorrhage has not been excessive and the condition of the patient warrants it, the effort may be made to effect complete removal by attempting to detach the costal reflection, commencing at the site of the resected ribs and following the costal and diaphragmatic portion toward the median line,

until the point where the visceral detachment has been affected has been reached.

Ample access to the pleural cavity is to be secured by turning a flap of the soft parts so as to expose two or more of the ribs. The size and shape of this flap will be governed by the position and dimensions of the cavity and the relations of the lung to the thoracic wall. If a fistula exists, at least one, and, if possible, two ribs above this point should be resected. The method of anterior thoracotomy through the cartilages advocated by Veslin does not seem to possess any particular advantages. Immediately upon opening the pleural cavity, rapid curettage accompanied by irrigation by means of boric-acid or potassium-permanganate solution should be done. The suggestion of Lambotte to inflate the lung during the operation under general anesthesia is scarcely practicable, although, if this is deemed desirable the patient may be permitted to come out from under the influence of the anesthetic sufficiently to cough. If spinal cocaineization is used, as in my second case, the patient may be directed to inflate the lungs at will. Excessive hemorrhage must be kept in check and unnecessary dissection avoided. In incising the visceral pleura, at which point the pleurectomy is generally commenced, care should be exercised not to injure the lung. A small incision to ascertain the thickness of the pleura should first be made, and this subsequently enlarged upon a grooved director. The lung may be recognized by its gray color, and every care should be exercised to avoid penetrating this in the subsequent steps of the decortication. If the lung shows a marked tendency to become herniated at the site of the first incision to an extent to embarrass further manipulation, a second opening may be made and the decortication carried on from this point, instead of enlarging the first. After the incision is once made and the peelings-off process commenced, the fingers of the operator and a pair of blunt scissors are alone needed to complete the decortication. The bleeding is held in check by crowding gauze behind the blunt scissors, or the fingers of the operator, if these are used. By following up the track of the scissors or fingers in this manner surprisingly little blood will be lost. In cases uncomplicated by tuberculous deposits, and particularly where a fistulous track exists passing through a mass of cicatricial tissue and degenerated pleural membrane, the operator may be encouraged to attempt complete removal of the latter. The operation may be completed by light tamponade with gauze and suture of the flap in part. As a part of the after-treatment the patient should be taught to encourage complete expansion of the lung by the use of an apparatus consisting of two large bottles connected together by an inverted U-shaped tube reaching to the bottom of each bottle. Another tube leads into each bottle, through which the pa-

tient forces air upon the surface of the water with which the bottle is filled, thus driving the water from one bottle to the other, and vice versa.

Results.—So far as the present study has developed, the operation of decortication of the lungs, either by visceral pleurectomy, combined visceral, costal, and diaphragmatic pleurectomy, or visceral pleurotomy with detachment, has been attempted or actually performed forty-one times. Three operative deaths have been reported. It is difficult to estimate the actual results so far as restoration of function is concerned, for the reason that, in reporting cases, operators seem to lay more stress upon the operation than the functional result. A study of thirty cases of decortication by one or another of the methods as above stated, and in which these points have been made sufficiently clear in the reports obtainable to base a fair estimate of results upon, shows the following, as viewed from the standpoint of recovery with complete restoration of function of the lung:

Cured	11
Improved	6
Unimproved	9
Died	3
In doubt (my second case)	1

Viewed from the standpoint of cure of the empyema, the following is shown:

Cured	17
Unimproved	9
Died	3
In doubt	1

If we deduct the 6 cases of advanced tuberculosis from the total number, and consider the subject from the standpoint of cure of the empyema, the following appears:

Cured	17
Unimproved	5
Died	1
In doubt	1

Separating the cases of visceral pleurectomy and visceral pleurotomy with detachment, from those in which the diseased portion of the pleura was removed in toto, the following appears:

Visceral pleurotomy and pleurotomy with detachment of the visceral layer (excepting cases of advanced tuberculosis) 22 cases:

Empyema cured	16
Empyema not cured	2
Operations abandoned	2
Died	2

Total pleurectomy (excision of all accessible diseased visceral and parietal pleural membrane), 2 cases (both my own):

Completely cured	1
In doubt	1
Died	0

Again, separating the cases of typical visceral pleurectomy from those in which, so far as can be gathered from the reports, the visceral pleura was simply split or incised and the edges of the incision separated so as to permit expansion of the lung, it is found that 7 recov-

ered, so far as the empyema was concerned; but only 3 had a complete functional result, and one died. If we excluded from this list the fatal case of Reclus, in which the autopsy showed extensive tuberculosis of both lungs, and respecting which Reclus states that the operation should not have been attempted, the showing is much better. On the other hand, taking the cases in which pleurotomy with detachment only of the visceral pleura (no portion of the membrane being removed, so far as could be ascertained), and including the cases of advanced tuberculosis, it would appear that 5 were completely cured, 4 were improved, 11 were unimproved and 2 died. Eliminating the tuberculous cases (those in which well-marked evidences of tuberculous deposits were apparent at the operation, or revealed by the autopsy), as well as those in which, after incising the costal pleura, it was found that the visceral pleura was not sufficiently accessible to warrant an attempt to incise it (2 cases), it is found that 5 were completely cured, 4 were improved, 5 were unimproved, and none died. Of the 4 improved cases all had incomplete but improved expansion of lung, but one of them had a persistent fistula.

It would seem from a study of all the available cases that tuberculous disease, either localized (pulmonary) or more or less generalized in addition to the local affection, was responsible for all the deaths, at least half of the failures to cure the empyema and a majority of the cases in which failure to procure complete restoration of the function of the lung resulted.

As to the number of cases in which complete cure, cure of the empyema, or improvement as regards function of the lung, with or without resulting fistulae, in tuberculous cases, study of the recorded cases gives but unsatisfactory results. With the tendency at the present time to regard the majority, if not all the cases of non-traumatic empyema as tuberculous in origin, it will be claimed that the large majority of the cases included in this study were of that character. In excluding the cases denominated "tuberculous" from consideration in attempting to arrive at the results of the operation of decortication of the lung, care has been exercised to eliminate only those in which the operation or post-mortem revealed such evidences of the disease as should have been discoverable by careful physical examination, examination of the sputum, etc., and in which the lesions were sufficiently extensive as to have deterred a careful operator from attempting the operation, had he been aware of their existence. While it may be true, as claimed, that the chances of escaping tuberculous infection in the lung subjected to such an environment as that which is present in an empyema are in direct proportion to the promptness and completeness

of its functional restoration, yet it must be apparent at a glance that the presence of cavities in the lung involved, or even in the other lung, must necessarily lessen the prognosis in direct proportion to the extent of the lesions, until a point is reached in which the case is absolutely hopeless from the surgical standpoint.

Conclusions.—(1) Decortication of the lung is an operation adapted to all cases of old empyema in which extensive and pre-operatively discoverable tuberculous lesions of the lungs are not present, and in which the patient's condition will permit of a major operation. (2) It may be advantageously substituted for Estlander's operation in the majority of instances in which the latter has been considered, up to the present time, as being indicated, since it is more a rational procedure in that it combines the advantages of restoration of function of the lung, so far as this is possible, with closure of the empyemic cavity. (3) It should replace Schede's operation in all cases. (4) The method by extirpation of the diseased portion of the pleural membrane, including the visceral, cortical, and diaphragmatic portions, is the operation of choice. (5) Failing this, visceral pleurectomy should be selected. (6) Pleurotomy, with simple detachment of the visceral layer of the diseased pleural membrane, gives sufficiently good results to warrant the surgeon in resorting to this procedure in cases in which the condition of the patient will not permit of the application of the other and more desirable methods. (7) Whatever operative method is adopted, as complete access to the cavity of the chest as possible should be obtained, and rapid closure of the opening in the chest-wall afterward secured, since the complete re-expansion of the lung must depend largely upon the normal respiratory movements. (8) Pulmonary or respiratory exercises should not be neglected in the after-treatment, since these aid greatly in the restoration of the function of the lung.

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- ⁸ La Clinica Chirurgie, 1899, 382.

Extradural Spinal Cocainization.—The new method of spinal cocainization proposed by Sicard (*Presse Medicale*, May 11, 1901) has proved its usefulness for medical analgesia, but is inefficient as a measure for surgical anesthesia. It is completely harmless and enables the cocaine to be introduced without fail into the extra-dural or epidural space. He calls it "the method of extradural injections by the sacrococcygeal route."

A STUDY OF SOME COMPLICATIONS AND SEQUELÆ OF TYPHOID FEVER.

BY H. A. HARE, M.D.,

OF PHILADELPHIA;

PROFESSOR OF THERAPEUTICS IN THE JEFFERSON MEDICAL COLLEGE
AND PHYSICIAN TO ITS HOSPITAL;

AND H. R. M. LANDIS, M.D.,

OF PHILADELPHIA;

ASSISTANT IN THE OUT-PATIENT DEPARTMENT OF THE JEFFERSON COLLEGE HOSPITAL.

IN April, 1899, one of the writers of this article published an essay on the "Medical Complications and Sequelæ of Typhoid or Enteric Fever," in which he endeavored to present several important facts, the chief of which, perhaps, is that this disease very frequently occurs in forms so varied from that described in text-books that errors in diagnosis are by no means uncommon. A second point of some importance is that this disease, more than any other, seems to be followed by sequelæ near or remote, which are of very great clinical importance. It is an interesting fact that since April, 1899, the literature on this subject has almost equalled that of the previous twenty years, probably because methods of diagnosis are more accurate, physicians are more keenly active in the search for such possibilities, and, finally, because with the aid of two wars involving the Anglo-Saxon race typhoid fever has become very prevalent in camp and in civil life.

In the essay referred to the fact was insisted upon that the prevalence of this disease was continually decreasing all over the world and the percentage of mortality was also decreasing. With the years 1898, 1899 and 1900 there was a great increase in frequency of cases in the great cities of the United States, but notwithstanding this fact there was not only no increase in mortality but an uninterrupted decrease in its percentage which would seem to prove: (1) That many mild cases, which, with faulty diagnosis would have been overlooked, were reported; (2) that the virulence of the disease is decreasing or that the resistance of the race increasing, and (3) that the methods of treatment are greatly improved. That the decreasing death-rate rests upon the development of an immunity seems very unlikely. Personally, we believe, that the modification of the virulence of the infection by improved sanitary measures which are not favorable to the best development of virulence of the specific bacillus is the chief cause of the changes already named.

Passing from these preliminary remarks we may proceed to a study of various interesting facts in connection with the subject of this paper.

Typhoid Fever in Pregnancy.—As was pointed out in the previous essay the pregnant woman suffering from typhoid fever quite commonly aborts, different statistics varying from 70 to 17 per cent., but in many instances no harm befalls either the mother or child.

Morse¹ assigns as the principal cause of abor-

¹ Medical Complications and Sequelæ of Typhoid or Enteric Fever, Lea Brothers & Co.

tion: (1) the high temperature; (2) the accumulation of toxins in the maternal blood; (3) the death of the fetus. The most common cause, however, is believed to be the death of the fetus. It has been shown experimentally that the injection of cultures of the typhoid bacillus into pregnant rabbits and guinea-pigs always results in abortion. A case of typhoid fever complicating pregnancy has recently been reported by Chambrelent² and is of very considerable interest. In this instance a woman aged 26 years was taken ill with typhoid fever during the last month of her pregnancy and during the acute stages of the disease was normally delivered of a healthy child; her illness pursuing its regular course and resulting in perfect recovery, while the child manifested none of the symptoms of the malady. Still another case is that which has been recently reported by Dr. Terry, at first privately to one of us, Dr. Hare, and more recently in the MEDICAL NEWS. In this instance a woman of 29 was taken ill with typhoid fever during the fourth month of her third pregnancy. The disease ran a moderately severe course, the temperature 104.1° F. Convalescence began during the fourth week, but the disease did not seem to interfere with the course of the pregnancy nor did the pregnancy seem to influence the disease. The patient went to full term and was delivered of twin girls weighing respectively six and seven pounds which were perfectly healthy in every way.

These instances of typhoid fever complicating pregnancy and resulting in recovery are interesting not only because, as we have already pointed out, the percentage of abortion under these circumstances is usually high, but because, side by side with them we find in medical literature reports of other cases in which the results were by no means so favorable. Thus, de Grandmaison³ has recently published two cases of a septicemic form of typhoid fever occurring in women during the last stages of pregnancy. In the first, a patient of 20 years, aborted after an illness of a few days. Her temperature then became irregular, and for a period of four weeks stayed constantly between 103° and 104° F. The symptoms during this time were almost entirely abdominal, but toward the last the signs of bronchopneumonia, endocarditis, and peritonitis were present. At the autopsy these various conditions were actually found and the bronchopneumonia was proved to be due to the streptococcus and the endocarditis and peritonitis to the typhoid bacillus. In the second case, a woman delivered at full term, developed typhoid fever a week later. She also suffered from bronchopneumonia and died. At the autopsy there was found an abscess in the right sternoclavicular articulation which was proved to be due to the typhoid fever. The characteristic intestinal lesions were present and the specific bacillus was found in the organs generally although there was also a tuberculous pneumonia. In both of these women the eruption and the enlargement of the spleen were absent. The Widal reaction was present in the second case

and the typhoid bacillus was demonstrated in the blood of both. De Grandmaison believes that the abortion in the first case was the direct result of the typhoid and that the septicemic condition was secondary, the infection of the blood taking place from a uterine wound, the recently delivered surfaces offering ready entrance to the general circulation, and so giving rise to septicemia. These cases strongly emphasize the recent remarks of Horton-Smith⁴ already insisted upon in our earlier essay, that we must cease considering typhoid fever exclusively an intestinal disease but rather regard it as a form of septicemia.

Typhoid Fever in Children.—Another point of interest that we meet with in the study of typhoid fever is the frequency of the disease in children. That the disease is common in children notwithstanding the fact that its existence has been denied by many clinicians was we think then proved in the essay to which we have referred. But if any further proof was needed to convince the most doubtful of the fact that typhoid infection in early life is by no means uncommon, such proof is forthcoming in the large number of cases which have been reported within the last two years in which not only numbers of children have been studied when suffering from this malady, but in addition it has been found quite frequently affecting new-born infants. An interesting case of this character showing apparent infection from the mother to the fetus rather than infection of the child by ordinary means after birth is recorded by Chambrelent.⁵ In this instance the child gave a positive Widal reaction immediately after birth and also presented symptoms of typhoid fever.

George Blumer⁶ records a case of a woman who had typhoid fever four and a half months prior to the birth of her child, the child dying when nine days old as the result of hemorrhagic infection due to the typhoid bacillus. There were hemorrhages in the mucous membrane, a hemorrhagic colitis and an enlarged spleen. Still another instance is reported by Bell¹²¹ of a woman contracting typhoid fever in the eighth month of her pregnancy. She was delivered of an apparently healthy child, but it at once developed a temperature. The child was ill for one week; was markedly jaundiced and had rose spots. The Widal reaction was present on three occasions. Recovery took place. Other remarkable instances are those which have been recently reported by Dr. Morse,⁷ who in an extensive review of fetal typhoid found twelve cases in which uterine infection had undoubtedly taken place. Of these nine were born dead or died at birth; two lived four days and one five days. None of the living children showed any symptoms of typhoid fever, they simply did not thrive and died. On examination the spleen and liver were found enlarged in some instances and in others hemorrhages had taken place in various organs. The characteristic lesions of the intestine were invariably absent. This is explained by the fact that the infection in all probability took place through

the placental circulation and not through the mouth. An additional reason is that the intestine is not functionally active at this period of life. Ten cases are cited in which it was evident that intra-uterine infection did not take place, as bacterial examination of the fetus in each instance was negative. Morse believes the high mortality in these cases of intra-uterine infection to be due to the septicemic nature of the disease, and his conclusions are that the bacillus typhosus can pass from the mother to the fetus through the placenta; the fetus usually dies *in utero* or shortly after birth; the fetus may be infected, born alive and die without definite symptoms. It is probably possible for the fetus to be infected *in utero* and be born alive and well. Of this, however, there is no definite proof. The disease undoubtedly is unusual under two years of age, as Morse⁸ in a careful review of the question could collect but 18 cases in which the diagnosis was beyond doubt. Nine of these 18 cases were proved by a positive Widal reaction or the finding of typhoid bacilli in the organs. Stowell⁹ in a series of 61 cases in children observed the disease in four under two years of age, and Blackader¹⁰ saw it in four cases under two years out of 100. Roemheld in 1898 reported 117 cases in children of whom seven were under 2 years. From 2 up to 15 years the frequency of the disease gradually increases.

The explanation advanced as to the infrequency in the very young is lack of exposure. Stowell states that in nearly every instance the infection was the result of exposure to other children or adults suffering from the disease. Northrup¹¹ who has seen six cases of undoubted typhoid in children under two years of age states that the diagnosis was easily made on signs and symptoms characteristic of adult typhoid fever. All of his cases were intimately associated with others in the family suffering from the disease and he holds that doubt should be encouraged concerning any diagnosis in an infant under two years not intimately associated with other cases.

Symptoms in Children.—The first manifestation is quite commonly headache which may be quite severe. In 68 of Blackader's 100 cases headache was well-recognized and in 16 was severe. Vertigo may be marked in the beginning. A sudden onset is not infrequent, the child being seized with severe headache and a rapid rise in temperature or by nausea and vomiting. Rarely a convulsion is the first manifestation. Barbier and Herrenschildt¹² noted vomiting during the prodromal stage in about one-third of 47 cases observed by them. The vomiting does not as a rule continue during the height of the disease although it may return again during convalescence. Sevestra¹³ has observed a number of cases which led him to believe that a sudden onset is not very rare. Blackader states that in his experience every case with a sudden onset has been associated with some gastro-intestinal disturbance and attributed to some indiscretion in diet. Epistaxis is present quite as frequently as in

adults, occurring in 23 out of Blackader's cases. Among some of the more unusual manifestations at the onset may be mentioned tonsillitis, stomatitis, angina and chills. Anorexia was noted by Blackader in 49 cases. Stowell observed anorexia frequently with gradual failure of the digestive power as the fever increased.

Abdominal pain at the outset is of quite frequent occurrence (33 times in Blackader's series) and is not to be confounded with appendicitis. Richardson¹⁴ has called attention to this point and cites several cases in which operation was urged but in each instance in the course of a few days, typhoid fever became manifest. According to Stowell tympanites is less constant in children than in adults. It was noted as being slightly present in 49 cases by Blackader. Constipation is undoubtedly more common than the typical diarrhea as is shown by a study of these cases. Perforation is extremely rare and is not noted in any of the large series, probably owing to the mildest of the intestinal lesions. French¹⁵ reports a child aged 10 in whom perforation occurred on the fortieth day of her illness. Hemorrhage is also an infrequent accident; in four of Blackader's cases the stools were blood tinged but there was no distinct hemorrhage. Stowell has seen hemorrhage but twice among 61 cases. A palpable spleen was present in 70 per cent. of Blackader's cases and in 69 per cent. of the children under two years reported by Morse. Stowell states that in the majority of his cases the spleen was enlarged and tender. Enlargement of the liver, though not so marked, is quite often noted. Albuminuria is not unusual and is thought to increase in proportion to the fever. It was not of frequent occurrence in Stowell's series and in his case the specific gravity averaged about 1,020 showing there was very little concentration. Blackader noted albumin in the urine in but five cases presenting an exanthematic eruption, and Weill and Lesieur¹⁶ found albumin in 25 cases.

Temperature in Children.—The course of the fever in children differs essentially from that of adults in that it does not follow the typical curve found in the adult. The rise in temperature may be sudden and abrupt. Usually, however, it rises gradually for the first few days, and then becomes remittent in character, a peculiarity which has given to the disease the name "infantile remittent fever." During the third week the temperature declines rapidly. Stowell¹⁹ has appended several temperature charts to his article showing that the temperature may be extremely irregular in type. Blackader¹⁰ observed in his cases that during convalescence a subnormal temperature lasting for days is a more frequent occurrence than among adults. Janeway¹⁷ states that when typhoid fever breaks out in institutions, especially among children, there are instances in which the fever subsides in from 3 to 10 days. He has designated these cases as typhoid febricula. He has also observed that there is a class of cases, with some gastro-intestinal disturbance and fever without these

manifestations, in whom the fever declines in from one to three days. A short time afterwards regular typhoid fever has developed.

Relapses occur in varying percentages. Blackader noted it in 15 cases while Stowell had but three cases. The degree of infection seems to have no bearing on the frequency with which relapses occur.

Eruption in Children.—The character and site of the eruption does not differ from that of the adult and appears about the same period of the disease. The eruption may first be seen as early as the fourth or as late as the second week, but is usually coincident with the height of the fever. During the third week it fades. Stowell, however, observed typical spots, in a boy four years old, ten days after he was well clinically. Morse found that among 15 cases under two years of age a roseola was present in 13. One would infer from Blackader's statistics that the eruption is not unusually absent as he found it in but 55 out of 100 cases. At times the eruption may be very profuse and occasionally there is an erythematous eruption during the first week. Weill and Lesieur have described an exanthematic form occurring in children. This form of eruption is characterized by large numbers of rose spots, appearing early in the disease and invading the entire cutaneous surface. The spots may be ecchymotic or papular in character. They believe there is some connection between this form of eruption and the mildness or absence of the intestinal symptoms.

While the eruption appears to have some influence on the abdominal symptoms the relationship does not hold with the nervous symptoms which may be quite severe. Among 280 cases they observed 73 with an intense eruption; of these but 15 had noteworthy intestinal symptoms.

Purpura is occasionally seen in children. Pinard¹⁸ reports a boy aged 13 who had hemorrhages from the nose, gums, bowel, and kidneys, and eventually recovered.

Circulatory and Nervous Symptoms.—The effects of the toxins on the circulatory system consist in a gradual weakening of the first sound with the frequent appearance of hemic murmurs. The blood, just as in adults, shows a steadily progressive anemia and diminution of the white cells. M. Guinon¹²² has reported the case of a girl, aged fifteen years, who during the first few days of her attack of typhoid fever developed tachycardia and an aggravation of the heart sounds with a dry pericarditis. The pericarditis, for a few days, masked an endocarditis. Pain was present and was increased by pressure. A small and rapid pulse indicated involvement of the myocardium also.

Nervous symptoms are not constant nor do they seem to appear with greater frequency than in the adult, with the exception of apathy which, according to Stowell, is common. Blackader observed nocturnal delirium in 18 cases; drowsiness during the first week in 12; restlessness during second and third week in 15; and in 4 semistupor. Nervous symptoms at the onset often

lead to great confusion, especially those cases simulating meningitis. In these the onset is often sudden, with intense headache, retraction of the head, vomiting and delirium. A positive diagnosis is often impossible for a few days when as a rule the condition becomes manifest. The Widal reaction is of little value at this time as it is not commonly found in the early days.

From a review of the literature it is apparent that typhoid fever in children, except in a few details, does not differ essentially from adult typhoid and that the diagnosis in children usually rests on those signs and symptoms on which we place the most reliance in the adult. In children, the course is shorter, varying from 12 to 21 days, and may run even a shorter course. The temperature is either irregular or more often conforms to its own especial type. Abdominal symptoms are not so marked as in the adult and perforation and hemorrhage are extremely unusual. The mortality is greatly below that found in adults except in children under two years of age. In the very young the mortality is very high; thus Morse found 8 deaths out of 17 cases or 47 per cent.

Complications and sequelæ do not seem to be very frequent among children judging from the large groups of cases reported. Stowell mentions varicella, parotitis, bronchitis, pneumonia and hemorrhage. Blackader noted otitis media in four cases, furunculosis in two cases and periorbitis in one case. Barbier and Herrenschildt noted vomiting, febricula of from one to four days' duration and numerous instances of subcutaneous abscesses. Five of their cases developed dysentery as a result of admitting a case of this disease into the ward.

Ryska¹⁹ mentions the only case of cholecystitis occurring among children. The patient was a boy aged thirteen years.

Aphasia has been noted in children, often arising without any ascertainable cause. Samuels²⁰ reports a child aged 18 months who was aphasic during the last week of its illness. The child made a good recovery. There was a most extreme degree of anemia in this case associated with a high leucocytosis. Da Costa²¹ reported a girl who suddenly became aphasic on the fourteenth day. He believed it to be due to toxemia acting on the speech centers or a localized hysteria. Silvio²² observed aphasia in a child of seven years, the condition persisting throughout the course of the attack. Although there was profound adynamia Silvio believes the aphasia was the result of toxic action on the speech centers.

Of the rarer complications may be mentioned cancrum oris²³ in a child of four; laryngeal stenosis²⁴ in a boy of nine; typhoidal meningitis in a child of four²⁵; and chorea developing in a child of three on the 70th day. An extremely unusual combination is reported by Bell²⁶. In a family in which typhoid fever and scarlet fever co-existed one child had scarlet fever, but escaped typhoid fever; another had typhoid fever and

escaped the scarlet fever; a third had typhoid fever primarily and was taken with scarlet fever on the 20th day; a fourth had scarlet fever primarily with typhoid infection on the 10th day.

Typhoid Fever in Advanced Years.—It has been known by all physicians that typhoid fever in advanced life is an exceedingly dangerous malady. Fatal as it is between 20 and 30, it is more and more fatal as life progresses, while, on the other hand, it is equally well known that typhoid infection in advanced years is comparatively uncommon. It is interesting to note that very few cases in individuals over forty years have been reported among the enormous number collected during the past two years, although from a study of literature it would seem that the statements as to its relative infrequency are too sweeping. Osler in *Studies No. III*, tabulates 52 cases out of 829 occurring beyond the fortieth year; 12 being over 50 years of age. Among those which have been reported we find an instance seen by Dr. Skinner²⁶ in which a woman of 52 was taken with a sudden rise in temperature and for two days had nausea and vomiting. The abdominal symptoms became especially well marked, the eruption was absent, but the Widal reaction was positive. The bowels were obstinately constipated throughout the disease. The fever ran a prolonged course, lasting for ten weeks, and during convalescence right ulnar neuritis developed which was severe in character and followed by atrophy. As this cleared up, the left ulnar nerve and the right peroneal nerve became similarly affected with slight atrophy of the muscles supplied by the latter.

As illustrating how frequently patients well along in years suffer from serious complications during the course of typhoid fever we may note not only this case of Skinner's but also one which has been recorded by C. G. Roth.²⁷ His patient, a woman of 52 years of age, had a mild infection running a course of about three weeks. During convalescence she was seized with a chill and bilateral pleurisy; and a few days later had another chill followed by pain in the upper lobe of the right lung with bloody expectoration. After this there were intervals of febrile movement preceded by slight chills. But pleural effusion did not take place into either cavity, and recovery ultimately occurred. Gabbi²⁸ reports two very interesting and unusual complications in a patient 65 years of age who developed paralysis of the ocular motor nerve and polyuria as the result of typhoid infection and Lugard²⁹ records an instance of a woman of 52 years of age who died on the twenty-ninth day of the disease suffering from a typhoid myocarditis, a lesion which is by no means uncommon in severe cases at this period of life. A case reported by Etienne³⁰ had a second attack at 44 and a third at 57 with recovery, and a woman, reported by Hamilton,³¹ had typhoid fever when 57; the attack being prolonged by two relapses and the appearance of cholecystitis on the seventy-second day.

Mildness of Onset.—Symptoms of typhoid

fever at the onset are often vague and indefinite especially in hospital cases where the patients or their friends are as a rule unable to give an intelligent history. In some instances the typhoid infection is masked by other conditions, and several days may elapse before the true condition declares itself. Ambulant cases may escape attention entirely or a fatal hemorrhage or perforation may be the first indication of the disease. Cases are not lacking in which this mildness, or presence of other symptoms than those of typhoid fever, has masked the true disease. Thus, W. W. Ford³² reports a man whose illness began two months prior to his admission into the hospital. During this time he suffered with weakness, anorexia, malaise, cephalalgia, vertigo, numbness, severe chills and night-sweats, cough and articular rheumatism. On admission he was jaundiced and had a thrombosis of the right popliteal vein. During the three weeks he was in the hospital prior to his death he had recurring chills at which time he always had a pronounced leucocytosis (18,000-30,000). Jaundice steadily became more intense until death occurred. At autopsy the healed lesions of typhoid fever were found in the intestines. The final diagnosis in this case was typhoid fever followed by a general septicemic infection.

R. T. Sutherland³³ had a man under his charge for acute alcoholism who showed every evidence of the disease after the former condition had disappeared. T. Anderson³⁴ reports a fireman who had been ill with a cough and pain in his chest for three weeks but had been walking about until three days prior to his admission to the hospital. Four days after his admission he had hemorrhage and an attack of vomiting. Ten days later he died. At autopsy numerous ulcers of the gall bladder were found, one of which had perforated, although during life there were no symptoms of peritonitis noted. Still another case of extreme mildness is reported by Posselt³⁵ of a man suffering from Hodgkin's disease in whom the diagnosis of typhoid was not made until autopsy.

Gabbi³⁶ reports a woman who in the twelfth day of her puerperium had a slight febrile reaction, which at first looked as though a purgative would remove it. Three days later, however, the patient began to complain of malaise and headache and presented a coated tongue and a rise in temperature and so passed into a well defined attack of the disease. Janeway³⁷ also speaks of six instances in which the diagnosis rested between typhoid fever and puerperal septicemia. Dr. Potaire,³⁷ of Paris, has recently called attention to the comparative frequency with which persons suffering from influenza develop typhoid. About the time convalescence seems established there is a sudden rise in temperature and severe headache with the usual typhoid symptoms follow. He contends that the condition is originally influenza from the late appearance of the rose spots. David Harris³⁸ reports a soldier who was seized with a chill and rapid rise in temperature, and an exam-

ination revealed a croupous pneumonia at the left base. Two days later his throat was examined, owing to a complaint of soreness and a well-marked diphtheritic membrane was discovered. Seven days from the onset of the diphtheria rose-colored spots, enlarged spleen and diarrhea led to a diagnosis of typhoid fever. The man made a good recovery. The author believes that the typhoid was present from the beginning but was masked.

Abrupt and Severe Onset.—In children abrupt onset is much more frequent than in adults, and vertigo, vomiting and chills are not unusual manifestations in this class of cases.

T. K. Muro and C. Workman³⁰ report the case of a man aged 18 who was suddenly seized with vertigo, headache and pain in the abdomen. The following day he had a pleuritic pain in the left side. In the beginning of his illness the diagnosis was not clear and the stools were not characteristic. Towards the end of his illness he had a profuse intestinal hemorrhage and a good deal of abdominal pain. At autopsy marked thrombosis of the mesenteric veins was found. Dubois-Havenith⁴⁰ mentions a man who was admitted to the hospital with a scarlatinal erythema. He had been ill for four days, the illness beginning with sore throat, general malaise and fever. He had all of the characteristic signs of typhoid fever, and at the end of the third week he developed a scarlatina-form rash which gradually faded and the skin underwent desquamation.

Those cases in which the onset simulates meningitis with intense headache, delirium and retraction of the head are scarcely distinguishable from the condition they ape. The Widal reaction is not reliable as it is not usually found so early. Trosier describes a case, the onset being marked by violent headache which persisted and later on developed symptoms of meningitis with ultimate recovery.

The principal variation of the fever at onset is a sudden rather than a gradual rise. Cases in which there is a sudden rise are as a rule associated with a chill or chilly sensation, and occur for the most part in children. Occasionally the onset is masked by another condition. Harris reports a soldier who had a chill and sudden rise in temperature in the course of a croupous pneumonia and diphtheria; as these conditions cleared up typhoid fever became evident showing that it had probably been present since the beginning of the case. Potaire states that cases immediately following influenza are quite apt to begin with a sudden rise in temperature. G. Boody⁴¹ reports a case of inverted temperature occurring in an epidemic in the Iowa State Hospital for Insane. The case was typical of typhoid fever except for the temperature which ran a course below normal, and the pulse and respiration were also below the normal.

Chills.—There is probably no one symptom of typhoid fever that has more frequently led to errors in diagnosis than chills. In the vast majority of cases in which they have appeared the

diagnosis of malarial infection has been made, particularly in our own army during the past war. They are often seen not only in the early onset but later in the disease and at the onset of relapse. Osler in *Studies No. III.* noted chilly sensations in 213 cases; in 200 cases there was a marked chill, 93 of these cases having more than one chill. We have collected the following cases since the essay was published.

F. Widal⁴² reports six cases of young adults, in five of whom the first manifestation was a chill or chilly sensation and severe headache; the sixth was suddenly seized with nausea and vomiting. In the discussion on the paper three other cases of adults were mentioned in which chills and severe headache or vertigo ushered in the disease.

Blackader mentions chills as the initial symptoms in 12 out of 100 cases of typhoid fever in children and other cases are reported by C. E. Edson⁴³ and by H. C. Thompson.⁴⁴ A chill occurring at any time beyond the onset of the disease is usually significant, pointing to some complication, more or less severe. Osler has previously pointed out this in his *Studies No. II.*, and more recently in *Studies No. III.* has added still more instances.

The septicemic type of typhoid fever is often masked by marked rigors. Instances of this are reported by Ford⁴⁵ and Gillies.⁴⁶ In some instances as in a case reported by Taylor,⁴⁷ chills may occur at intervals during the attack without any definite cause.

In connection with the subject of chills the co-existent existence of malaria and typhoid may be considered. As before stated the occurrence of chills has led to an enormous number of mistakes in calling typhoid fever malaria fever. Lyon has made a detailed study of the co-existence of the two diseases. In addition to a case of his own he found 29 other cases in the literature in which the co-existence of the malarial parasite and strong evidence, either clinical, pathological or bacteriological, existed of typhoid fever. Such cases are as a rule more severe than simple ordinary typhoid fever, and the mortality is high, 11 out of 30 dying. Complications are also prone to arise.

Chills may occur at the onset or at intervals throughout the attack. In some instances the malarial paroxysms disappeared during the active stage of the typhoid fever, to reappear again during convalescence. Lyon condemns the term typho-malaria and states that the vast majority of cases in the Southern States in which the combination is thought to exist are in reality either simple typhoid or in some instances irregular continued malarial fever. Thayer who has studied the malarial fevers and typhoid fever most thoroughly in and around Baltimore has seen but two cases in which the combination existed.

Abortive Type.—In the presence of extensive epidemics typhoid fever sometimes, especially toward the end, of the epidemic, runs a very short course, amounting to an abortive form. Children in the great majority of in-

stances, enter their convalescence between the tenth and eighteenth day, and cases are reported in which the seventh day marked the decline of the fever in such patients. It must not be understood that the abortive form begins with extreme mildness; quite the contrary. The disease may begin with great severity and in the course of a week or ten days disappear. In Philadelphia during the winter of 1898-99 there was quite an extensive epidemic of enteric fever following the bringing of large numbers of infected soldiers to the city. During this epidemic there was quite a number of cases running a course which were practically abortive in type. (See Hare's Essay.) E. G. Janeway¹⁷ states that when typhoid breaks out in institutions, especially among children, they are cases in which fever is the principal symptom and that it subsides in from three to ten days. He applies the name of "typhoid febricula" to these cases. Paul Remlinger⁴⁸ reports twelve cases of the disease with a rubeoliform or scarlatinaform eruption, four of which were of the abortive type.

Alimentary Symptoms at Onset.—Diarrhea, formerly so prevalent in typhoid fever from beginning to end, is present in not more than half of the cases at the present time. In a report of 250 cases of typhoid fever occurring in Ladysmith, South Africa, David Melville¹²³ states that in but 5 of them was there diarrhea. Constipation was constant and he states that it is a feature of the disease as met with in South Africa. Constipation at the onset is sometimes replaced by diarrhea if purgatives are administered. Nausea and vomiting are present in quite a large number of cases especially those with a rather rapid or abrupt onset. Vomiting was an initial symptom in 209 of Osler's cases. Anorexia is so generally present that it hardly needs mention, while jaundice as a manifestation of typhoidal cholangitis is sometimes seen late in the disease or during convalescence. Its presence at the onset is unusual. Ogilvie⁴⁹ has reported two cases in which jaundice was present, in one case when first seen and in another it appeared on the fourth day of the disease. In a third case jaundice preceded the typhoid fever and co-existed with it. The last case was in all probability catarrhal in origin. The other cases might have been catarrhal or may have been due to typhoidal infection of the gall bladder. Gall bladder involvement, however, generally first manifests itself during the third or fourth week or during convalescence.

An initial symptom of more importance than any of these mentioned is abdominal pain. The pain may be general or may be located in the right iliac fossa, and the latter cases cause the most difficulty in making a diagnosis. General abdominal pain was noted by Osler in *Studies No. III*, in 227 cases and pain limited to the right iliac fossa in six. In studying 500 cases with reference to pain, McCrae¹²⁴ found that in 166 cases the pain was present at the onset. The more severe the pain, the greater is the danger of

confounding the condition with appendicitis, peritonitis or enteritis. He cites several instances in which these mistakes were made. When pain is limited to the right iliac fossa, the diagnosis of appendicitis is not infrequently made. Richardson¹⁴ has called attention to this danger and cites several cases in which operation was urged but fortunately postponed. W. T. Bull¹²⁵ has reported a case in which this mistake was actually made and G. L. Peabody in the discussion stated that he has seen two such instances. H. A. Hare⁵¹ and Janeway¹⁷ have also drawn attention to this possibility.

Respiratory Symptoms at Onset.—In the previous essay the statement was made that bronchitis was unusual at the onset; Gillies⁴⁶ however found it present in 33.4 per cent. of 215 cases reported. Edson⁵² found acute bronchitis present at the onset in 54 per cent. of his cases, and believes that it is a symptom of extreme importance in the early stages. He found in many instances that the ordinary evidences of bronchitis were absent but that examination of the lungs showed numerous dry râles. In view of the fact that it is now well known that the Eberth bacillus has a tendency to localize in certain parts, as the gall-bladder and urinary bladder, it seems reasonable to suppose that this localization may take place in the lung setting up a consolidation. Localization in the lung with a consolidation presenting all the signs of a croupous pneumonia has been termed by the French "pneumo-typhoid." One of the writers (Hare) in a previous essay accepted this view, and cited several cases which seemed to bear out the truth of the statement. Osler has also accepted this view and in his *Studies No. III*, gives two cases, one in which typhoid fever was unsuspected till autopsy, and in the second, croupous pneumonia was supposed to be the true diagnosis for the first eleven days. No less an authority than Horton-Smith⁵³ takes an entirely opposite view. He believes the term to be a bad one and if retained should be understood to mean a pneumonia complicating typhoid fever, and in no sense typhoidal in origin. He states that the pneumococcus can always be demonstrated early in the consolidation but it is not found in the late stage. Furthermore where the pneumococcus and bacillus typhosus coexist, the former must be looked upon as responsible.

Von Stühlern⁵⁴ in three cases of pneumonia complicating typhoid fever was able to demonstrate this presence of typhoid bacilli, and the *micrococcus lanceolatus* in the sputum. He calls attention to the fact that in such pneumonias the sputum was decidedly hemorrhagic, an observation also made by Curschmann. Harris⁵⁵ mentions a case in which a soldier was attacked by pneumonia, later by diphtheria, and that the typhoid fever became evident as the two conditions cleared up. He believes the typhoid fever was present from the onset. Pneumonia as a complication occurred in 15 out of 829 cases during the past eleven years at the Johns Hopkins Hospital.

Gillies⁵⁶ observed pneumonia in 2 out of 129. In ascertaining the cause of death among 315 cases Remlinger⁵⁷ found eight cases of broncho-pneumonia and four of croupous pneumonia. Hypostatic congestion at the bases of the lungs occurring during the third or fourth weeks is not unusual but is now properly considered as a result of cardiac deficiency rather than a disorder of the lungs. (For Typhoid Pleurisy see Chapter on Respiratory Conditions in Well-Developed Stage.)

Nervous System at Onset.—Headache is by far the most frequent of the nervous manifestations at the onset and is recorded in most of the reported cases, whether associated with other nervous phenomena or not. In Osler's *Studies No. III.* headache was present in 595 out of 829 cases. In quite a large proportion of children the headache is replaced by vertigo. Actual meningitis while comparatively rare at the onset or indeed at any time during the course of typhoid is often simulated especially in the beginning. A limitation should therefore be made in the use of the term meningitic typhoid, applying it only to those cases which simulate true meningitis. Meningitic typhoid often begins with severe headache, especially in onset, early delirium and retraction of the head. Delirium or stiffness of the neck occurred in 61 of Osler's cases. In the course of a week these symptoms entirely pass off. The confusion is intensified because in the early stages the Widal reaction is commonly absent. A true meningitis will usually show paralysis of one of the special nerves, rigidity of the extremities or convulsive movements.

Among the more rare nervous manifestations at the onset are occipital neuralgia, fleeting pains in the wrists and spine, early delirium and tremor of the hands and aphasia. The aphasia in a case reported by Silvio existed from the beginning and lasted throughout the entire course of the disease.

C. P. Emerson⁵⁷ reports a case of an oculomotor paresis occurring on the eighth day. As a rule disturbances of the nerves governing the eye occur much later. In the case reported the paresis was thought to be due to a localized patch of meningitis. In the opinion of E. G. Janeway⁵⁷ the mental state is sometimes rapidly altered, probably owing to idiosyncrasies. Conditions simulating mania or melancholia appear and he has seen cases in the early stages of typhoid fever in which the diagnosis of insanity was made. These psychoses are distinct from the mental disturbances which appear later.

Renal Lesions in Onset.—Renal lesions at the onset are not usually met with. Osler in *Studies No. III.* reports two cases with albumin and hyaline and granular casts during the first week of the disease.

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(To be continued.)

"THE PORRO-CÆSARIAN OPERATION" WITH REPORT OF TWO SUCCESSFUL CASES.

BY JAMES H. GLASS, M.D.,

OF UTICA, N.Y.;
SURGEON IN CHARGE OF THE FAYTON HOSPITAL.

JAMES BLUNDELL of London, in his *Principles and Practice of Obstetrics*, 1834, conceived and recommended the employment, while Storer of Boston in 1868 performed the operation which eight years later, in 1876, was first successfully accomplished by Porro of Pavia and has since been known by the name of the later surgeon. Compared with the older Cæsarian method with its open incision and faulty technic the Porro operation with fixation of the stump in the lower angle of the wound proved to be a great step in advance, becoming, because of its lesser mortality and simplicity of recovery, the recognized treatment of Cæsarian cases. Following closely upon this improvement, in 1882, came the recommendation of Sanger of Leipzig that the uterine wound be completely closed.

The practical application of this proposition

¹Read before the Medical Society of the State of New York.

(first by Leopold of Dresden) resulted in a still further reduction of mother mortality and the very general adoption of this more conservative method, which with the Porro operation and symphysiotomy have revolutionized the attitude of obstetric surgeons to the operation of craniotomy on the living child until now it is, or should be, an operation of little more than historical interest.

In view of the practically common mortality in well done Snger and Porro-Cæsarian operations we should I believe reach a definite opinion on two propositions dealing with these operations, viz., (1) that tubal excision without hysterectomy for the purpose of sterilization and interference with future pregnancy is unwarrantable. The first should presume the second step as the organ left is rendered functionless and can only become a source of possible trouble or evil; (2) that we should have a well-defined plan of ovarian conservatism and that in all cases possible, an ovary or its fraction should be left *in situ* since recent study so conclusively shows the value of its secretion in general nutrition, and its preventive influence in the nervous disturbance incident to the early and artificial menopause.

The following indications for the Porro operation as formulated by Howard A. Kelly of Baltimore are explicit and difficult of improvement: (1) Where there is good reason to anticipate sepsis, where, for example, the patient is exhausted from protracted labor, and where manual or instrumental efforts at delivery have been made repeatedly or without due antiseptic precautions; (2) where there is cancer of the cervix uteri; (3) where the uterus contains myomatous tumors which block the pelvis or which cannot be safely removed by myomectomy; (4) where there is an extensive atresia of the vagina; (5) where there are bilateral ovarian tumors and no sound part of an ovary can be found and left; (6) when hemorrhage from the placental site is uncontrollable.

The question of the relative rights of mother and child and the responsibility of the surgeon to these in the various forms of maternal dystocia is an intricate one, which, owing to sentimental considerations, must at times be difficult of decision, as between the so-called Snger and Porro-Cæsarian operations or the former modified by excision of the tubes or ovaries for the purpose of sterilizing the subject. Some authorities maintain that it should be elective with the mother; others oppose this view diametrically, while yet others have various shades of opinion between these extremes. We believe that circumstances should largely govern in this question, and are of the opinion that if the uterus and adnexa are healthy, although dystocia be absolute, we should urge the conservative operation, while doubting our inclination to deny the appeal of the patient to be protected from future hazardous pregnancies, notwithstanding the arguments that she is mistress of her sexual relations and concep-

tions, or that she may have had a successful Cæsarian operation before.

In an estimate of the comparative mortalities there seems to have been an increasingly favorable showing in the mother mortality for the Porro operation during the last decade. The statistics of Dmelin for the past five years giving a mortality for the Porro operation of about 10 per cent., which is about $\frac{1}{3}$ less than that in the Snger-Cæsarian operation. The fetal mortality for the Porro operation, on the other hand, is greatly in excess of that of the Snger operation, a fact presumably due (as illustrated by Leopold's cases) to the death of the child before undertaking operation, the condition requiring the Porro operation also being reasonable proof of this proposition. The statistics of selected operators, as for example, Snger, Leopold, Braun, and Zweifel, showing a mortality of about 8 per cent. cannot, of course, be accepted as criteria for general operators. Neither of the two cases whose histories are appended were in the strict sense of the word Porro operations, but modifications of it. Cases No. I. and II. having been done after the methods advocated by Freund and Baer, respectively.

Case I.—Mrs. E. K., American, age forty-three, married at twenty-three years, has borne five living children, the elder being sixteen, the younger three years of age. Since the first labor the patient has had more or less vaginal discharge with evidences of uterine malnutrition, presumably due to cervical laceration; with the last birth there was some antepartum bleeding with postpartum flooding, the attending obstetrician not suspecting the presence of malignant disease. Prior to and during the present pregnancy, which is supposed to have taken place about December 20, 1897, the patient had an increase of the vaginal discharge, which at times was offensive. Since the fifth month of pregnancy there had been hemorrhages of increasing frequency and severity until I was asked to see her September 15th.

The patient was emaciated and exsanguinated; digital examination revealed a soft mass, filling the vagina, bleeding so actively with manipulation that further examination was deferred to a more favorable occasion. The following day the patient was admitted to Faxon Hospital, Utica, N. Y., where further exploration (confirmed by subsequent microscopical examination) showed the growth to be a carcinoma, probably springing from the cervical canal and invading the vaginal wall posteriorly. The mass was carefully packed about with strips of guaze into the mesh of which powdered ferric-alum had been dusted. This procedure was continued from day to day as it was believed to be safer than immediate excision by cautery or otherwise, in the hope that hemorrhage might be controlled, enabling the patient to recover some of her wasted vitality, and at once prolong the period of gestation, thus improving the dubious prospects for both mother and child.

in any operative procedure which might be deemed advisable later on. By this means the patient was carried along until about eight and one-half months of gestation, she meantime having been fed to the point of toleration, improving markedly in nutrition; at this time she had some hemorrhage and it was thought best to remove the mass with the galvanocautery which was done without difficulty, it having desiccated and hardened materially since first coming under observation. Hemorrhage from the cervical canal continued.

It being apparent that delivery *per vias naturales* must in all probability result fatally to the mother from shock and hemorrhage, from unavoidable injury to the degenerated friable cervix and lower segment of the uterus, beside offering the child a lessened prospect of life as compared with a Cæsarian hysterectomy, this procedure was selected and done. An incision extending from the umbilicus to the pubes was made, the edges of the abdominal wall protected with gauze and the exposed uterus packed off with gauze rolls; both ligaments (the right exclusive of the ovary) were grasped with a long Doyen forceps at the same time pushing the point of the forcep into the cervix for the purpose of controlling the circulation in the uterine arteries; a longitudinal incision in the uterus, avoiding the site of placental implantation, was made through which the delivery of the child (a living female of eight pounds weight) was effected without much hemorrhage. The ligated cord was dropped back into the uterine cavity, the uterus, everted, was severed from its attachment to the cervix and ligaments, which were tied and cut short after the method of Clark; the cervix was carefully dissected out, it being necessary to excise one-third of the posterior vaginal wall down to the rectal wall in order to get well outside of all infected tissue. There was apparently no involvement of the bladder or anterior vaginal wall in the diseased process. The cut edges of the vagina and peritoneum were approximated, except for a small opening through which a bit of gauze was brought out into the vagina for drainage, as the field had been decidedly septic. The abdominal wound was closed in the usual way. The patient's reaction not being satisfactory, she was given a pint of normal salt solution in the cephalic vein, after which she made an uneventful recovery, the operative field, except that in the track of the gauze, healing primarily. One year after operation we were unable to make out any iliac or other infected glands or tissues, the patient appearing and declaring herself perfectly well. Six months later, however, the disease reappeared in the trigone of the bladder, rapidly proving fatal as a result of obstructive nephritis.

Case II.—Mrs. S. W., age twenty-five years, Austrian, married. Primipara, admitted to Faxon Hospital having been in labor several days, uterine inertia supervening. Upon examination a sloughing funis presented, implying, of course, a dead child and presumably septic uterus. The

patient was found to have a flattened rachitic pelvis with a conjugate diameter of two and one-half inches. Preparations for a Porro-Cæsarian operation were made, this course being decided upon in view of the septic parturient canal; the consideration of a craniotomy being excluded upon the same grounds. With the patient in the modified Trendelenburg position, an abdominal incision seven and one-half inches in length was made down to the uterus. As in the previous case, the edges of the incision were protected with gauze and the uterus packed off with gauze rolls. Long Doyen forceps were pushed well into the substance of the cervix on either side for the purpose of catching the uterine arteries and clamped firmly down on the ligaments, as before, excluding the ovary on the right side, with the intention of preserving in a measure, at least, the sexual function and the influence of the ovarian secretion on general nutrition of which now there remains little contention; avoiding the area of placental implantation the uterus was now incised longitudinally without much hemorrhage and the dead child delivered, not without some effort, because of impaction in the narrowed pelvis. The uterus was now rapidly cut away, leaving the lower segment of the cervix; the vessels were closed with catgut, the oozing of the cervical stump controlled after the method of Baer by approximating its edges and covering the stump and bare ends of the ligaments by approximating the peritoneal edges, leaving the peritoneum clean and continuous throughout; after wiping out the cavity with normal salt solution the abdominal wall was closed in the usual way, the patient making an uninterrupted and perfect recovery.

Important questions in a consideration of the technic of the Porro operation are (1) control of hemorrhage, (2) the disposition of the stump or (3) its complete extirpation. The method of circulatory control as practised in the above cases was certainly satisfactory and we believe superior, in that it is more simple and exact than manual compressions or the elastic ligature, either of which methods might interfere with smoothness of technic or, on occasion, become positively obstructive, entailing delay and unnecessary shock. Employment of the method recommended also makes more practicable the excision of the uterus with the placenta intact, a consideration of manifest importance in septic uteri, as detachment and delivery of the placenta adds one step more to a serious operation and necessarily endangers an extension of infection. As to the disposition of the cervical stump, its fixation in the lower angle of the abdominal wound, as originally done by Porro, is an almost obsolete practice and justly so as nothing is added to the safety of the operation by so doing and convalescence is delayed. Excision of the cervix after the manner of Freund, except to meet some special indication, would seem undesirable as the integrity of the vaginal vault is impaired, while the additional time consumed and hemorrhage risked from the vaginal blood supply in its accomplishment may

prove a most disadvantageous factor. Admitting the desirability of treating the stump retroperitoneally, inversion, invagination, or approximation of its edges, becomes perhaps a question of minor importance. The later or Baer method is, however, more generally preferred as this disposition of it is done quickly and exactly and leaves a natural vaginal vault.

THE TREATMENT OF SCARLATINAL NEPHRITIS.

BY CHARLES GILMORE KERLEY, M.D.,

OF NEW YORK;

LECTURER ON DISEASES OF CHILDREN IN THE POLYCLINIC MEDICAL SCHOOL; ASSISTANT PHYSICIAN TO THE BABIES' HOSPITAL, NEW YORK.

A CRITICISM of fairly general application concerning the management of scarlet fever rests in an apparent lack of appreciation of the dangers of kidney complication. If every case of scarlet fever, whether mild or severe, were treated as though nephritis were expected, there would be comparatively few cases.

A child with scarlet fever is not to be considered well when the rash fades, when the temperature falls and the throat takes on a normal appearance. He is not to be looked upon as having recovered until five or six weeks have been safely passed. During the first three weeks of this period the patient must be kept in bed, no matter how well he may feel or how mild the attack may have been. It is extremely difficult to keep an active child who feels perfectly well in bed free from exposure, consequently the temperature of the room should be allowed but slight variation. It should range between 68° and 72° F.

When nephritis develops, whether unavoidable or due to neglect, we are very prone to share the apprehension of the family and overtreat the case. Diuretic drugs and combinations of them, the latter suggesting an intimate acquaintance with the "Latest Literature" columns of some of our medical journals, are given with no little harm in some instances.

Much has been written concerning the treatment of scarlatinal nephritis in the young, evidently from the adult standpoint and not based upon bedside experience with children. The child who has passed through even a moderately severe attack of scarlet fever recovers with weakened heart-muscle, unstable nervous system and assimilative powers considerably reduced. If we are to subject such a patient to repeated purgings, prolonged sweatings and promiscuous drug giving, we will do more harm than the nephritis—a disease which has a tendency to get well of itself. These cases should not be approached with fear and force, but with gentleness and therapeutic moderation. Digitalis is too frequently prescribed as a routine measure. When the pulse is full, rapid and of high tension, as is usually the case, the kidneys are already engorged with blood and digitalis will only do harm. Pilocarpine should only be given in extreme cases, after all other means have failed,

when uremia is established or when the patient is in an uremic convulsion—even then, its use is only safe in experienced hands.

Irritant cathartics interfere with digestion and assimilation and reduce the strength of the patient. The same is the case with the diuretic potash salts and other so-called diuretic drugs; as diuretics but little reliance can be placed upon them. In those cases in which prompt action is demanded, they fail us.

What then is to be the management of a case of exudative glomerular nephritis of average severity in a child with such symptoms as puffiness of the eyelids, edema of the feet and ankles, scanty, high-colored urine, fever, headache and perhaps nausea, symptoms which appear ordinarily in three to five weeks after the disappearance of the rash.

The first step refers to the diet. Milk, broths, and thin gruels only should be given. The plain milk diet is not necessary or perhaps desirable. When given exclusively the patient soon tires of it and it will not be well borne by the stomach; as milk is to be our main reliance for some time this must not be allowed. It may be given plain with lime-water or mixed with thin gruel; it may be given peptonized or in the form of junket. I usually order two or three feedings a day of thin gruel well salted, or gruel mixed with a very small quantity of animal broth. Six ounces of barley-gruel mixed with one or two ounces of chicken broth will be found acceptable to the great majority of children. Whey made with rennet to which cream has been added also makes an acceptable change. Alcohol in any form should never be used in any of these cases.

The bowels next require attention. There should be two or three stools daily. This is easily accomplished by the use of small doses of calomel, $\frac{1}{10}$ grain per hour (until one grain has been given), every third or fourth day, with two to four ounces of citrate of magnesia the intervening days if necessary.

Small doses of aconite, $\frac{1}{4}$ minim every two hours for a child three years of age, are prescribed usually as a routine measure. Aconite in my hands has proven a very useful drug in this connection. In the dosage suggested it produces a moderate diaphoresis which is what we require. While we do not expect much from aconite as a diuretic, its action in this respect is often surprising. When the aconite fails, hot air is brought into use. The hot air is generated by means of a kerosene lamp to which has been attached a funnel and a one inch tin pipe which has been bent at a right angle in the middle and placed so as to conduct the hot air under the bedclothes. The advantage of the hot air generated in this way lies in the fact that the child can be kept in the same temperature as long as desired. This is not possible by any other means. Hot-water bottles become cold unless watched very carefully and the hot pack and bath can only be applied for a short time. If diaphoresis is not produced, the hot pack is used in connection with

the dry heat. The child is immersed in water at 108° F. and kept there from ten to twenty minutes, hot water being added from time to time to keep the temperature at the point mentioned.

The pack and bath as sometimes used can do much harm. Sufficient care as regards exposure is often not exercised when the child is removed from the pack or the bath. If placed in a bed which has not been properly heated by hot-water bottles, the nephritis will be made worse.

Cupping over the kidneys has never been of any assistance in severe cases.

Hot poultices may be of slight service; they require very close watching, however, and must be changed frequently and not be allowed to cool.

A remedy which stands out prominently superior to all others is the hot-water flushing of the colon. I look upon the colon flushings as being of more value in restoring the kidney function than any other one measure. It may be used with advantage when the urine first becomes scanty as well as when convulsions are threatened or present. For a child three years of age, sixteen to twenty-four ounces of normal salt solution at 110° F. is introduced into the colon by means of a rectal tube which should be inserted at least ten inches. The object, of course, is to have the water retained, and the higher it is placed in the colon the more successful we will be in this respect. If the water is expelled shortly after its introduction, the same amount will often be held if it is reintroduced at once. A pint to a pint and a half every six to eight hours answers best in the majority of instances and will be retained by most patients. The results usually are most gratifying. After from three to five flushings in a stubborn case the kidneys often begin to act and soon there is a fairly free flow of urine. The child must be kept in bed until the urine has been normal for two weeks.

MEDICAL PROGRESS.

Tendon Surgery.—F. S. COOLIDGE (*Annals of Surgery*, 1901, No. 5) advances the following points for guiding the operator in tendon surgery, especially that which concerns the subject of infantile paralysis. The time for doing the operation should always be when the reparative process has come absolutely to a standstill. Massage and electricity should be applied until all progress under them has ceased and when it is precisely evident, what muscles are affected permanently, partially or have escaped. Regard must be had for the proportion between the strength of the muscle to be grafted and that of the muscle lost, and especial care must be taken not to overstretch the muscle grafted. Examples have occurred where by patience the peroneus tertius performed the functions of the tibialis anticus and where the sartorius after a few months made a good extensor instead of the quadriceps.

Two weak tendons can be made to supplant one strong one. Muscle substance cannot be successfully grafted one into the other, hence the tendons are the best means of doing this. The suturing can best be done above the annular ligament, although it is possible to perform it below also. The tendon of Achilles has no annular ligament. A tendon can by blunt dissection be carried a long distance before the graft is done, beneath the fascia or the skin. Once a muscle of the calf was carried through the interosseous membrane and grafted upon an anterior muscle of the leg. The end-to-end or the side-to-side method of suture is not very secure, consequently the normal tendon is now split a short distance and the paralysed is carried through it and then sewn in situ. Chromated gut with a life of from four to six weeks ought to answer every purpose and is the best for all-round use. Plaster-of-Paris splints for two months, then massage and protection for two months more, with gradually increasing passive motion, and, finally, active motion finish the treatment.

A Case of Trichinosis.—Puffy face and eyelids with marked pallor in a case of trichinosis observed by GEORGE R. SEARS (*Boston Med. and Surg. Jour.*, May 30, 1901) at first suggested acute nephritis. The skin was hot and dry, forearms and legs swollen, but without edema. Tenderness present in tibiae, calves, thighs and forearms. Successive blood-counts showed moderate leucocytosis with the following percentages of eosinophiles: 17½, 13, 31, 39, 33, 23 per cent. The temperature curve resembled that of typhoid, highest point 104° F. A piece of gastrocnemius muscle was examined eight days after beginning of pains in legs; myositis was found, but no trichinae. Ten days later a piece of muscle was removed from opposite leg; thirteen trichinae were seen in a single microscopic field.

Operation in Typhoid Perforation.—H. CUSHING (*Annals of Surgery*, 1901, No. 5) states that unfortunately in this condition statistics are misleading, because they state only the fact as to the operation and its results without proper regard to the various types of case encountered. In Europe the various authorities teach the doctrine of delay, often till the symptoms are purely those of the consequent peritonitis, which they confuse with those of a perforation. In this country, on the other hand, the attitude of the medical and surgical experts is more and more pronounced toward a very early intervention. Just so soon as the symptom-complex indicates that a perforation has occurred should an exploratory laparotomy under local anesthesia be undertaken. The analogy between this condition and that encountered in appendicitis is striking. Here the earlier the operation the better the results so far as life-saving goes. As in appendicitis so in typhoid perforation there are the cases in a pre-extravasation

stage, the cases in the state of localized peritonitis and the cases of generalized peritonitis, with all the chances for best results in favor of those in which the diagnosis and intervention are had in the earliest possible period. Keeping these facts in mind and ever watching all typhoid-fever patients for any abdominal signs, the attending physicians will be able to call in the surgeon early enough to make the statistics of those saved among all fully fifty per cent. by early exploration.

Nasal Conditions of the Aged.—Five cases are reported by B. DOUGLAS (*N. Y. Med. Jour.*, May 25, 1901) to show that it frequently occurs that marked pathological changes are found in the nasal cavities of old people without giving any important symptoms—at least, comparable with the distress which ordinarily results from similar lesions in younger people. A satisfactory explanation is impossible, but he believes that probably the physiological activity of the nose has been so increased as to overcome the damage from the lesions, or perhaps the lesion with its resulting discharge and reflex pain is, in some way, less active and allows the nose to resume its physiological function. The symptom of pain depends not so much upon the degree of inflammation or circulatory disturbance as upon a certain condition of the nervous structures that are distributed through the nares. In older people when the lesions have developed slowly and without marked mechanical irritation from external causes, it may happen that these people are not neurotic and will never develop any of the usual reflex phenomena. The degree of secretion depends largely upon the activity of the inflammatory process and, hence, if it has been a very slow and chronic affair, very marked changes may finally result without having given previous symptoms of annoying discharge.

Operative Treatment of Uterine Cancer.—

HERZFELD (*Wiener med. Woch.*, 1900, No. 49) maintains that it is fallacious to speak of abdominal hysterectomy as a "radical" operation, for the following reasons: (1) The cellular tissue of the pelvis, which is commonly involved, cannot be entirely removed. (2) It is technically impossible to remove all neighboring lymph-glands. Vaginal hysterectomy is regarded by the author as safer than the abdominal operation, the latter procedure, in the hands of Wertheim, showing a mortality of 30 per cent. While vaginal hysterectomy is only palliative in 50 per cent. of the cases operated upon, it is absolutely without danger and in the remaining cases lasting results are obtained.

Amyl Salicylate.—LYONET (*La Méd. Moderne*, May 22, 1901) proposes amyl salicylate as a substitute for methyl salicylate for the following reasons: (a) It is fully as active; (b) it lacks the disagreeable odor of the drug formerly used; (c) it is no more irritating. Two to three grams are painted over the surface of a rheu-

matic joint, which is then covered with a sheet of gutta-percha; a rapid diminution of pain and swelling follows. The results of administration by the mouth have been fully as satisfactory as those due to local application.

THERAPEUTIC HINTS.

Chorea.—In treating chorea we must bear in mind that voluntary movements of any kind tend to make the involuntary movements more marked, and that the movements cease during sleep, therefore the more quiet a patient can be kept, the better chance there is of proper nutrition for the body and nervous centers. When the motions are severe, chloral in full dose is probably the best narcotic, especially when given with a bromide. Morphine sometimes is better, but may increase the excitement. Inhalations of chloroform may be useful to get the patient off to sleep. The patient should be given liquid nourishment and stimulants; and frequent spongings to stimulate the skin and calm the patient. Constipation is the rule and requires castor-oil, aloes, etc. Arsenic is the most used remedy and is certainly of value in the dyspeptic conditions of chorea; it may be assisted by iron in the later stages. Other drugs used are zinc oxide, cannabis, physostigma and conium. In chronic cases the much-recommended change of scene often makes the movements worse and prolongs the attack. Massage may be of considerable value. Chorea in many cases is allied to hysteria; therefore, firm, kindly, moral treatment is called for, the patient being encouraged to control the movements by effort of will.—ASHBY and WRIGHT in "*Diseases of Children*."

Blepharitis.—The disease is apt to be obstinate, and it is of great importance to remove the cause. Lack of cleanliness, faulty habits and errors of refraction must be looked after. The edges of the lids must be cleansed thoroughly with soap and water, freed from scales and crusts, dried, and then covered with an ointment of yellow oxide of mercury or of ammoniated mercury. To remove the crusts, soap and water, or borax-water should be applied upon cotton. In the ulcerative form an occasional application of one- or two-per-cent. solution of silver nitrate to the raw spots will prove useful. In severe and long-standing cases it will be necessary to pull out all the lashes and then to apply the treatment given above.—C. H. MAY in "*Diseases of the Eye*."

For Bronchitis.—

℞ Pulv. senegæ }
Sod. benzoat. } aa....gm. 0.30 (gr. v.)
Sod. bicarb. }

In capsule four times a day.

Or

℞ Terpin hydrat }
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A WEEKLY JOURNAL
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SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,
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SATURDAY, JUNE 15, 1901.

THE AMERICAN MEDICAL ASSOCIATION AND ITS WORK.

THE recent well-attended meeting of the American Medical Association at St. Paul shows better, perhaps, than did meetings held at points more convenient for larger numbers of medical men how deep is the profession's interest in the work of the National organization. The Association has in these latter years risen out of a phase of quasi-provincialism to be thoroughly representative of the best elements of scientific and professional progress in American medicine. This state of affairs is most encouraging. At the beginning of the new century the clearest truth in practical life is that assured success is the outcome only of thorough organization. Many problems await solution in the social and legal relations of the medical practitioner to his clients and to public health. These can not be definitely and properly solved unless the weight of a united medical profession can be brought to bear upon legislation and public opinion.

The most noteworthy feature of the last meeting was the liberal attitude of the President and members of the Association toward

that portion of the New York medical body whose defection ten years ago did so much to delay the unification of the profession in this country. The recently adopted opinions are, however, only the result of a just survey of the motives and conditions that prompted the attitude assumed by the New York Society before its enforced withdrawal. The President's acknowledgment of the right-mindedness of the motives that formed the basis for the action of the representatives of the New York medical profession must go far to repair the breach that still exists.

The selection of a New Yorker as President of the American Medical Association and the acceptance of the invitation to hold the next annual meeting at Saratoga must be taken as indices of a successful movement that is to give back to the Empire State her long lost influence in the councils of the National body of physicians. The New York State Medical Association, thanks to the unsparing efforts of certain members, has been growing handsomely in numbers and influence in recent years. The auspicious circumstance of having the annual meeting of the National Association to inspire to renewed efforts should add greatly to its membership and prestige. With the recently adopted scheme of reorganization of the State and National Associations, to cement the union of all the societies composing them and to make their influence available for professional purposes, there seems no reason to doubt that the day of a really united medical profession is at hand.

The new plan of government adopted by the National Association promises by its thoroughly representative character to do away with the petty sectional politics that have sometimes proved a jarring element at annual meetings. The proposed reformation of the code, already under way, encourages the hope that a stumbling-block in the way of certain serious minds as regard membership in the Association will be soon removed. For many years past some of the rules of conduct embodied in the old code have, if taken in their strictly literal signification, been a dead letter. Since they have proved a source of disunion, it must be a cause of congratulation on all sides that they are to be modified to meet the change of circumstances and evolution of conditions which make them a relic of the past.

The recent St. Paul meeting was especially

noteworthy for the social relaxation it afforded attending members of the Association. Every year the social gatherings take on a more friendly character and the good effected is quite as much due to the familiar fellowship that reveals the character of coworkers in the same field as to the scientific discussions that mirror recent practical advances in the various specialties. The promise may confidently be held out that visitors to the meeting at Saratoga next year will meet with as pleasant a welcome and will be greeted with social features as attractive and gratifying as any ever provided. That the American Medical Association is about to enter into the fulness of its heritage as a thorough representative of the whole medical profession of the country now seems assured.

PARACENTESIS IN ASCITES.

THERE is considerable discussion always as to the advisability of evacuating fluid that exudes into serous cavities. With regard to pleuritic fluid there is almost an agreement that it should not be removed by mechanical means, unless it is causing acute symptoms, or has been present a long time and is a source of considerable annoyance. Besides, conservative opinion rather tends to formulate the practical rule that not much pleuritic fluid should be removed at a sitting. As soon as the intrathoracic pressure has been materially lessened so as to relieve disturbance of function, then the rest should be left for natural channels to carry off. Unfortunately this conservatism with regard to the removal of pleuritic fluid has had a distinct influence in molding general opinion as to the treatment of ascites, and often serious harm is done by permitting fluid to collect in the abdomen until pressure is so high as to interfere with the circulation through important abdominal organs.

Much of the hesitation to do early paracentesis abdominis for ascites is due to the fact that the older clinicians, such as Niemeyer, Frerichs, and Bristowe were opposed to it. The popular impression, too, that abdominal tapping is always done as a forlorn hope and the tradition that patients seldom recover after it has been once done have had their influence in delaying the little operation. It is the old difficulty of a vicious circle in the formation of a medical conclusion. The popular impression is due to the fact that abdominal paracentesis was so long delayed in

the past that it was really only a last resort. Physicians had very slight hope of affording any permanent relief by it. No matter what the condition that produces ascites it should never be allowed to develop to a degree that causes serious respiratory difficulty. Before this occurs there is always such interference with the function of important organs in the abdomen that the patient's general condition deteriorates markedly and rapidly.

In America we owe the tradition to tap the abdomen early to that distinguished clinician Dr. Austin Flint. As long ago as 1863, he wrote in his clinical report on ascites, "Unpromising as are the majority of cases of ascites, I cannot but believe that as regards the prolongation of life and as much improvement as is compatible with existing structural disease, the success of medical practice would be enhanced by employing less than has been the custom, diuretics, hydrogogue cathartics and depressing remedies, and by resorting earlier than is usually done to tapping." More than twenty years later Professor Flint wrote, "After the added experience of these last twenty busy years, I hold to this same opinion of the advisability of early tapping with a strong conviction of its correctness as based on reason and clinical facts." Flint's well-grounded opinion had its effect on European clinicians and Eichhorst, one of the most conservative of the Germans, insisted ten years ago that "puncture of the abdomen and evacuation of the ascitic fluid must not be left as a last resort, or inevitable injury will be done to important organs."

In the Lumleian lectures last year Dr. Cheadle summed up very well the English opinions on the subject. They are still very conservative but a notable change has taken place in recent years in favor of advising earlier paracentesis for ascites. Dr. Cheadle himself has had none but the most gratifying results from early and, if necessary, repeated tapping.

In hepatic ascites this procedure forms for him now an essential part of the treatment. In ascites due to atrophic cirrhosis where the good accomplished is only transitory and nothing can be hoped for beyond a respite of a few months the early removal of the ascitic fluid enables the patient to live longer in comparative comfort instead of struggling through a shortened life in hopeless, almost unmitigated distress. This same thing is eminently true of that other equally hopeless condition, advanced cancer of the liver with ascites.

Text-books of medicine generally lay too much stress on the use of diuretics and hydragogue cathartics in the treatment of these cases of ascites. Dr. Cheadle suggests that the expression "purged to death" is not infrequently sadly appropriate to the records of cirrhotic ascites. However much good it may do once or twice, purging as a repeated therapeutic method is certainly calculated to do more harm than good.

When ascites is due to kidney lesions moderate continuous catharsis does good, for toxic material must be eliminated. Diuretics are under these circumstances apt to do more harm than good. Stimulation of the diseased kidneys only hastens their degeneration. If intra-abdominal pressure is interfering with their normal circulation at the same time, then the end is not far off.

In a word, early tapping is the indication for ascitic accumulation, as soon as it is evident that fluid is still collecting and primary purgation and diuresis do not affect the condition. The main reason for hesitation in the employment of this remedial measure in former years was the fear of infection producing peritonitis. Recent clinical experience shows that with ordinary precautions this fear is unfounded. Abdominal tapping is often followed by free diuresis, the result of the relaxation of pressure on the kidneys which affects the renal veins more than the arteries and thus causes passive congestion. The general condition at once improves. Some lives will be saved by early and, if necessary, repeated abdominal paracentesis; many will be lengthened and the discomfort of a large number of patients will be greatly mitigated.

THEN AND NOW.

WE are just entering upon the period of the year when medical society meetings are especially frequent. We shall hear much of present-day medicine and of its advances. The fact that this is the opening year of a new century will tempt many to be retrospective. Undoubtedly there is much in the old-time medicine to condemn, but advance in medicine has been so rapid of late years that it will not be long before our own positions in medical science will seem as absurd to others, or even to ourselves, as do those of a century or more ago to the present generation.

From this standpoint of judging others as we would be judged, our summations of medicine

aforetime will not be so utterly condemnatory, and there will come the realization that after all the old medicine was the soil, weedy though it was, out of which has come the promising harvest of medical science in our day.

There is a chapter in "The Transit of Civilization" by Edward Eggleston, concerning medical notions in the seventeenth century. It is a far cry, but it touches a not unsympathetic chord that thrills to the gropings of the physician of that time to find something that would do his patient good. There was no therapeutic pessimism abroad. Medical infidelity was unknown. The bother was men believed too easily in the efficacy of remedies. The pendulum of medical opinion was in its inevitable swing at the opposite end to which it is now. One distinguished authority asserted that we could not know more of Nature than Aristotle, nor of therapeutics than Galen, and so the old writers must be studied rather than the case. After a perfunctory examination of the patient's pulse and tongue then hours must be given to the search through Galen for all possible hints as to treatment.

Until the middle of the eighteenth century Galen's famous "theriac," the cure-all, the panacea for every ill that flesh is heir to, and a few others besides, was retained in the British Pharmacopoeia. Then it was rejected by a majority of a single vote in the Pharmacopœial Commission. The famous, or infamous, mixture contained 60 ingredients—nearly every known drug in some form or other. The important thing about drugs in those times, however, was not so much their essential properties as those they acquired from being gathered at a certain time of the moon and a certain conjuncture of the planets. There was also the accepted doctrine of a sympathy and antipathy of inanimate things toward certain human natures. Temperaments were carefully scrutinized and it was well known, for instance, that the man of choleric disposition, with iron will, would not stand iron well though his condition might seem to give indications for it. On the other hand, patients of capricious appetite and of shifting ways—of the mercurial nervous temperament, in a word—would not be improved by mercury. Blood purification was the great shibboleth of the quack of the seventeenth century, as it has been from the beginning and as it is even in our vauntedly illumined day.

The cast-off rattles of the rattlesnake were an

almost infallible remedy for pains of all kinds, especially for headaches about the menstrual period and for the pains of parturition. Sometimes they were applied externally with due shaking (and this custom has not yet died out in country places). Sometimes the rattles were crushed and taken internally. At a time when the famous weapon ointment so humorously described by Oliver Wendell Holmes—the ointment that was infallible but had to be applied to the weapon not to the wound—was so popular, almost any absurdity in surgical practice does not seem surprising. Milk was given in large quantities in jaundice, because it was argued that white would neutralize yellow. Potable gold was the remedy reserved for wealthy patients. Metallotherapy, a distinguished Frenchman has called it, the effect being produced not by increasing the deposit of gold in the patient's system, but rather by depleting the plethora of the yellow metal in his pockets. Those were the days of the depleting methods of therapeutics, bloodletting, blistering and the rest, and some of them have not gone entirely out of fashion yet.

Of course we feel ourselves thankful to be free from the incubus of all these medical superstitions. Many of them die hard, however, and live on in modified form even in our enlightened day. Popular medicine is largely made up of beliefs quite as unreasonable as were in vogue two centuries ago. One of the duties of the modern physician is to make scientific medicine better understood. Another is to bear in mind that our present generation is not infallible and that accepted opinions are by no means absolute truths. Medical society discussions will lose in acrimony and gain in value with the realization that our position of the pendulum of medical opinion is by no means the ultimate resting place of either theory or practice. Long ago the wise old Greek father of medicine said, "Life is short and art is long, the occasion is fleeting, experience fallacious and judgment difficult. The physician must be prepared, not only to do what is right himself, but to make the patient, the attendants and the conditions coöperate for cure." After 2,500 years Hippocrates' words are as weighty with practical significance as they were at any time in the history of medicine. They surely represent the best plea for peaceful conservatism in the midst of rational, scientific progress that could well be made and are a precious lesson to the beginning century.

ECHOES AND NEWS.

NEW YORK.

Cornell University Medical College.—The third annual commencement of Cornell University Medical College was held last week. The degree of M.D. was conferred on twenty-six graduates, many of them women.

Smallpox in Suffern.—Dr. Johnson, Secretary of the State Board of Health Commission, has investigated a complaint made by the health authorities of New Jersey to the effect that smallpox was being brought into that State from this State, and that the disease had been traced to Suffern, N. Y. Dr. A. S. Zabriskie is health officer of Suffern, and he was asked some time ago by the State Health Department what the conditions were. He replied that there was no smallpox there, but that there was a number of cases of "Cuban itch." Investigation, however, showed that these cases were in every instance smallpox. Dr. Zabriskie, however, insisted that there was no smallpox. Conditions in Suffern are said to be serious. In one family there are six cases. It is also believed that the disease is being carried not only into New Jersey, but into New York City and other localities.

Columbia University Commencement.—Commencement was held June 12th. The graduation class of this year consisted of 142 students. The honorary degree of Master of Science was conferred upon Dr. George M. Lefferts, Clinical Professor of Laryngology and Rhinology of this University.

Ocular Defects in Applicants at West Point.—No official report has as yet been made by the Medical Examining Board, but in official circles it is said that about 25 per cent. of the young men who presented themselves for entrance examination at the Military Academy were found physically disqualified, mainly on account of defects of vision.

New Brooklyn Post-Office Physician.—Dr. W. H. Clowminzer of Brooklyn has been appointed physician for the Brooklyn Post-Office. This new Federal position has been made on the recommendation of Postmaster Wilson, who not infrequently discovers that some of the employees were in the habit of feigning sickness.

Journal of New York Pathological Society.—In lieu of the former annual volume of Transactions, the New York Pathological Society now issues a journal once a month. The first, a very creditable, number has just been received.

Bequest to St. Vincent's Hospital.—The sum of \$2,500 has recently been bequeathed to St. Vincent's Hospital.

Harlem Medical Association.—At its last meeting, June 10th, the Harlem Medical Association elected Dr. Joseph E. Lumbard President, Dr. Edmund L. Cocks, Vice-President; Dr. W. H. Luckett, Secretary, and Dr. W. H. Stewart Treasurer.

PHILADELPHIA.

Fewer Cases of Typhoid.—The epidemic of typhoid fever in the twenty-fourth and thirty-fourth wards has somewhat abated, though a large proportion of recent cases has been from that district. No cause for the outbreak has been discovered.

Sterilized Milk and Ice at Less Than Cost.

—The Philadelphia Sterilized Milk, Ice and Coal Society has begun its eighth season of work. The Society furnishes to poor people milk at 5 cents per quart and for infant feeding sterilized milk at 1 cent per bottle.

Obituary.—Dr. Edmund Beale died June 1st at his home on Second street, where he had practised medicine and pharmacy for nearly half a century.—Dr. J. Edward Wright died June 9th of tuberculosis in his forty-third year. He had practised in the southeastern section of the city for twenty-one years.

Building Hospitals Restricted.—The recent Act of Assembly providing that hospitals shall not be erected in built-up sections of cities has been pronounced constitutional and will be enforced. This will interfere with three hospitals now under consideration in this city.

Graduation Exercises, University of Pennsylvania.—The Dental and Medical Societies held their meeting June 11th, the medical reunion concluding with a banquet in Houston Hall, at which Provost Harrison responded to the toast "The University." A portrait of the late Prof. John Ashhurst, M.D., was presented to the University by the Society. Dr. A. N. Gaylord delivered the annual oration before the Dental Society.

Resident Physicians at the Philadelphia Hospital.—Efforts are being made to take the appointments of resident physicians at the Philadelphia Hospital out of the sphere of political influence. This year a competitive examination was held, but instead of the Board electing the residents, the eligible list was sent to the three colleges of the city. The college authorities will select the men best qualified for the place and these will be elected by the Board. Seven men are to be chosen from each of the three colleges. The Woman's Medical College has also secured the concession sought for during some years—the admission of three graduates to the resident staff of the hospital. The experiment of female internes was tried some years ago, but not with satisfactory results.

Treatment of Thermic Fever.—At the meeting of the College of Physicians June 5th, Dr. J. M. Spellisy read a historical review of the

cases of thermic fever admitted to the Pennsylvania Hospital. The first recognized case was in 1764, the case being recorded under the diagnosis "drinking cold water," as the cause. The paper was also a study of the evolution in methods of treatment at the hospital. Several points regarding treatment were brought out in the discussion of the paper. Dr. Morris B. Lewis believes there is much to be learned regarding the pathology and treatment of the condition by a study of the blood. Dr. J. C. Wilson advocates the use of infusions of salt solution because of the evidences of auto-intoxication. Dr. F. A. Packard spoke of some features of thermic fever not generally noted in text-books. These are a characteristic, mousy odor, a curious, crooning groan, and a mixture of tonic and clonic convulsions. Lack of serosity of the blood is the probable cause of the symptoms. Dr. James Tyson said that the latter point was the probable explanation of the good results following immersion in cold water, some absorption taking place, and more rapid recovery following than when the patient is simply rubbed with ice.

CHICAGO.

Nurses Graduate.—The commencement exercises of the Woman's Hospital of Chicago, given under the auspices of the Ladies' Board of that institution, took place June 4th.

Wardenship of Cook County Hospital.—Daniel D. Healy has notified President Hanberg of the County Board that he will accept the wardenship of the Cook County Hospital, and it is said that he will supersede the present Warden, James H. Graham, about June 15th.

Addition to German Hospital.—A \$40,000 addition to the German Hospital is the project undertaken by Superintendent Burmeister and the Trustees of that institution. The Hospital now has accommodations for 100 patients, and there is a demand for double the quarters available.

Visiting Nurse Association.—During May the Visiting Nurse Association of Chicago cared for 704 patients and made 3,222 visits. In coöperation with the Bureau of Charities provision has been made to send fifty women and children on outings during the summer.

New Physiology Scholarship, University of Chicago.—By the will of Dr. Marie J. Mergler, who died at Los Angeles, Cal., in May, the University of Chicago is to have a \$3,000 scholarship of physiology. Dr. Mergler also bequeathed \$3,000 to the Woman's Hospital of Chicago.

GENERAL.

New Fellowship Appointment in Johns Hopkins University.—Florence R. Sabin, M.D., has been appointed to the fellowship in the Johns Hopkins Medical School provided

by the Baltimore Association for the Promotion of the University Education of Women.

Case of Plague on an Army Transport.—The War Department has been advised from Nagasaki that the delay in the departure of the transport "Kintuck" from that place had been due to a discovery of a case of plague on board which caused the vessel's detention.

Canteen Resolutions of American Medical Association.—By unanimous vote the American Medical Association adopted a report endorsing the movement for the reestablishment of the army post canteen. The Committee on Legislation, through the Chairman, Dr. H. L. E. Johnson, presented a report reciting the resolutions adopted by the Military Surgeons last week and continuing as follows:

"We have carefully considered the resolution proposed and declare it to be wise and proper and of importance to every citizen of the Republic. The resolution is the outgrowth of careful study and observation by the Medical Department of the United States Army, is concurred in by the commanding officers at the several posts, and is intended to correct serious abuses under the present law which result in drunkenness, desertion, insubordination, dishonorable discharge, crime, poverty, appalling increase in disease and invalidism among the soldiers of the United States Army.

"We find that the experience of the foreign Governments coincides with that of the National Association of Military Surgeons in the necessity for the army post exchange, or canteen.

"We recommend that the American Medical Association adopt the resolution proposed, and that it petition the Congress of the United States to repeal at the earliest moment the objectionable law which prohibits the army post exchange."

The Association adopted the following resolution: "*Resolved*, That this body deplores the action of the Congress in abolishing the army post exchange, or canteen, and in the interest of discipline, morality, and sanitation recommends its reestablishment at the earliest possible date."

Consumptive Immigrants Are Barred.—Immigrants with tuberculosis of the lungs hereafter will be debarred from all ports of the United States regardless of boards of special inquiry, which heretofore have used their discretion in the matter. The order, issued by Superintendent of Immigration Powderly, is mandatory. The Board of Special Inquiry at Ellis Island, after receiving the report on a case of tuberculosis from Dr. G. W. Stoner, chief of the medical division of the immigration service at New York, will merely have to debar the immigrant. The Supervising Surgeon-General of the Marine Hospital Service at Washington has declared that "tuberculosis of the lungs is now considered a dangerous contagious disease." Immigrants with pro-

nounced symptoms of consumption often have been deported. There are a few instances where a child ill of the disease has been permitted to land with its parents; hereafter there will be no more of these. The rule will apply also to alien passengers coming in the first and second cabins. The steamship agents say their companies will be affected very little by the new order, as their ships bring over few unhealthy immigrants.

Hospital Superintendent Removed.—The Superintendent of the Isolation Hospital at Paterson, N. J., has been removed, and the resignation of the head nurse accepted, after an investigation by the Board of Health. One of the complaints was of neglect to fumigate the ambulance, whereby, it was charged, a boy suffering from scarlet fever contracted diphtheria and died.

New Appointment, College Physicians and Surgeons, Baltimore.—Dr. William Royal Stokes, City Bacteriologist in Baltimore, has been elected a member of the faculty of the College of Physicians and Surgeons in that city, and has been given the chair of pathology.

Doctor in "Innocents Abroad."—In reply to an inquiring citizen of Chicago, Mark Twain writes that the doctor in "Innocents Abroad" was Dr. A. Reeves Jackson, a prominent physician of Chicago, who died in 1892.

New Haven Water-Supply.—All of the water-supply of the City of New Haven will by next fall be run through immense filters to be constructed by the New Haven Water Company. The company will spend, it is announced to-night, \$1,000,000 in order to perfect the new plant, and will commence to install the filters at once. The supply from the Saltonstall, Lake Whitney, Maltby Lake, and Woodbridge systems will all be run through high filtering machines before it enters the city pipes. The experiment is the first of the kind ever tried in Connecticut.

Army Medical Appointments.—The following appointments were made by the President last week: Surgeons of volunteers, rank of major, Simon J. Fraser, Howard A. Grube, Richard S. Griswold, Abram L. Haines, Damaso T. Lainé; assistant surgeons, rank of first lieutenant in the Porto Rico regiment, United States volunteer infantry, S. Moret and George F. Mayers.

Discovery of New Antiseptic.—According to the despatches in the lay press, an important discovery in the science of antiseptics, upon which Drs. Frederick G. Novy and Paul C. Freer have been working for over a year in their respective laboratories, has just been made public. The new antiseptics are organic acid hyperoxides. In a watery solution five one-thousandths of 1 per cent. of active oxygen derived from the hyperoxides is fatal to all bacteria. The hyperoxide which was used for the experiments is benzozlacial, and this, as was shown by experiments on dogs, can be

taken internally in large doses without poisonous effect. The discovery promises to result in still other developments of importance.

Mr. John D. Rockefeller Thanked.—The American Medical Association at its recent meeting adopted resolutions expressing thanks to John D. Rockefeller for his gift of \$200,000 for the furtherance of scientific research along medical and surgical lines.

Prevalence of Smallpox in the United States.

—According to the Public Health Reports issued May 31, 1901, by the U. S. Marine-Hospital Service 25,355 cases of smallpox occurred in the United States from December 28, 1900, to May 31, 1901. For the corresponding period of 1900 11,448 cases were reported. Of the total 25,355 cases this year 427 died, a mortality of a little over 1.5 per cent. For the same period last year this was over 5 per cent. The ten States showing the greatest figures for 1901 are as follows: Tennessee, 4,296; Kansas, 4,033; Louisiana, 3,228; Minnesota, 3,071; Colorado, 2,197; Ohio, 1,894; New York, 935; Indiana and North Carolina, 834 each; Nebraska, 754.

Changes in Army Medical Service.—The following changes in the stations and duties of officers of the Medical Department are ordered: Capt. Francis A. Winter, assistant surgeon, from Fort Sheridan to Jefferson Barracks, relieving Major Marshall W. Wood, surgeon, who will proceed to St. Louis and assume charge of the medical supply depot to relieve Lieut.-Col. Joseph B. Girard, Deputy Surgeon General; Lieut.-Col. Girard to Vancouver Barracks for duty as chief surgeon of the Department of the Columbia. First Lieut. Chase Doster, to the Twenty-first infantry.

A New Journal of Scientific Medicine.—It is understood that a new journal devoted to the interests of scientific medicine will shortly be forthcoming from Boston. It is reported that it has been placed in the competent hands of Dr. Harold C. Ernst, which is assurance of its high aims.

Sanitarium for Fond du Lac, Wisconsin.—On the 12th inst. the corner-stone of St. Mary's Sanitarium was laid with appropriate ceremonies by Archbishop Katzer. The building, which will cost \$50,000, is the gift of John T. Boyle.

"Healers" Certificate.—The International Machinists' Association decided recently that a certificate of death from a Christian Scientist doctor would not be recognized in the future in a claim for death benefits.

Obituary.—Dr. Thomas Bond of London, a well-known surgeon and analyst, committed suicide June 6th by throwing himself from a third-story window of his residence. He had been suffering from melancholia for some time. Dr. Bond was surgeon to the late Mr. Gladstone.

Major Louis S. Tesson, medical director of the Department of Columbia, and post surgeon at Vancouver barracks, died June 7th

from apoplexy. He had been sick about one month. Major Tesson was fifty-nine years old, a native of Missouri, and joined the Medical Department of the United States Army twenty-six years ago at St. Louis. He had served at all the important army posts in the United States.

Dr. Maurice Lauren Healy of New York City died at the home of his mother in Plattsburg, N. Y., June 8th. Dr. Healy was born in Plattsburg thirty-seven years ago, and was graduated from the New York University Medical College. For three years he was a lecturer in the Post-Graduate College and was assistant in the Demilt Dispensary.

Dr. W. H. Daly of Pittsburg, Pa., died suddenly June 9th. He was well known as the originator of the "embalmed beef" controversy that led to an investigation after the Spanish-American War. He was born in Indiana County, Penn., July 11, 1842. From 1853-4 he attended a course of lectures in the Jefferson Medical College, but graduated from the University of Michigan in 1866. During the Civil War Dr. Daly was for a time a medical cadet at the Germantown United States Army Hospital and an assistant surgeon in the White Hall, United States Army, and the Savannah (Ga.) General Hospitals. He was one of the medical officers sent to Jacksonville, Fla., to receive the final instalment of prisoners from Andersonville at the close of the war. Upon the termination of his service in the army Dr. Daly settled in Pittsburg, where he practised his profession. He again entered the army when the war with Spain began, and became surgeon upon the staff of Gen. Miles. His field service extended from Tampa to Porto Rico. Dr. Daly was a member of the American Medical Association, Medical Society of the State of Pennsylvania, the Alleghany Medical Society, of which he was Recording Secretary; the Pittsburg Academy of Medicine, and the Mott Medical Club.

Dr. R. H. Chilton of Dallas, Texas, died at his home June 6th. Dr. Chilton was an eminent oculist and had enjoyed a large practice in the southwest for more than twenty-five years. He was about fifty years of age.

CORRESPONDENCE.

OUR LONDON LETTER.

[From Our Own Correspondent.]

LONDON, June 1, 1901.

THE LONDON POLYCLINIC—A HOUSE OF CALL FOR MEDICAL PILGRIMS—THE LABORATORY OF THE COLLEGES OF PHYSICIANS AND SURGEONS—THE FINANCES OF THE COLLEGE OF PHYSICIANS—THE MANAGEMENT OF THE COLLEGE OF SURGEONS—A COMING REFORMER—MR. ANDERSON CRITCHETT.

THE chief event of medical interest during the past week in London is the festival dinner in aid

of the funds of the London Medical Graduates' College and Polyclinic which was held on May 22d. Some five hundred gentlemen, mostly members of the medical profession, sat down to a banquet of the true British type—overbaked meats which coldly furnished forth the long tables, followed by a sluggish, but unending stream of dismal oratory. But the cause for which so many worthy citizens were content to suffer was felt to be of sufficient importance to justify some sacrifice of comfort. The Right Honorable Arthur Balfour, the Leader of the House of Commons, who was in the Chair, made a powerful but somewhat inappropriate speech, for it was virtually a plea for the endowment of scientific research. Now the Polyclinic has nothing to do directly with research; it has indeed bacteriological and other laboratories, but these are intended purely for instruction. The real object of the institution is to enable men who are in busy practice to bring their knowledge and skill up to date *cito, tuto*, and as far as possible *jucunde*. These men cannot get what they want at the medical schools. There they are in the way and are made to feel that they are in the way; and in any case, it is hardly pleasant for a man who is already actively engaged in the battle of life to sit on school benches among a throng of irresponsible boys.

For many years the need of post-graduate instruction has been keenly felt in this country, and it was to supply that need that the Polyclinic was founded some three years ago. The institution had many obstacles to encounter from the external jealousy of the medical schools (of which there are no fewer than eleven in London), and from the internal jealousies of its own promoters. Of these the most prominent was Mr. Jonathan Hutchinson, who by means of his influence, which is deservedly very great with the profession, and by generous gifts and loans of one kind or another, made the embryo institution viable and helped it into healthy life. But his is a masterful personality, and the work was not accomplished without a good deal of friction. There appears, however, to be every prospect that the Polyclinic will now grow in importance and efficiency. The membership is already about seven hundred; the lectures and demonstrations are well attended, and increasing numbers of general practitioners bring cases for consultation.

The institution is further beginning to fulfil a function of a different, but not less important nature. Before its creation London had to the medical visitor from abroad been little better than a wilderness. There was indeed plenty to see, but it was hard to discover how and where to see it. It was a mighty maze, apparently without a plan; and there was nothing to guide the wanderer in his search. Hence medical pilgrims from America and from the Colonies found it more profitable to visit scientific shrines where the "shows" were better organized. The Polyclinic, in addition to the advantages which it of-

fers to native practitioners, is intended to be a house of call for the pilgrims aforesaid. There they will get all necessary information about the medical sights of London, and they will be put in the way of using their time among us to the most profitable purpose.

Unfortunately the Polyclinic is not yet self-supporting and although the profession has done its part, the public to which appeal has been made more than once has not yet responded very liberally. I believe the financial result of the banquet the other night was a disappointment to the friends of the institution. A sum of fifty thousand dollars was wanted to put it on its feet, but only eight thousand were forthcoming. Every effort had been made to whip up rich men with charitable leanings, and at least two millionaires were present, Messrs. Beit and Lionel Phillips, Hebrew Jews from South Africa, one of whom had the honor of being condemned to death by Kruger's High Court of Justice. Some hope was entertained that these financial magnates would between them give what was required, but the bad food and the bad speaking together were quite sufficient to spoil the most charitable temper.

For some years past the College of Physicians and the College of Surgeons have between them maintained a research laboratory in which much good work has been done. But the College of Physicians, though a powerful body which claims for its Fellows a monopoly of hospital appointments in London and in most of the large cities of England, is not a wealthy corporation and its financial situation has recently become somewhat critical in consequence of the fiscal exactions of a government hard pushed for money to carry on a war which is estimated to be costing now something like sixty thousand dollars an hour. The College has probably a good case in law, but has no funds for the expensive luxury of an action; it therefore prefers to pay, though, in the classic phrase of the immortal author of *Pickwick*, "sighing like bricks as it lugs out the money." But to do this it has to retrench in other directions, and it has accordingly intimated that it can no longer contribute to the support of the Laboratory. The sister College cannot, or will not, maintain it singlehanded, and unless the British Medical Association comes to the rescue the Laboratory is doomed. But it is extremely doubtful whether the Association will be in a position to help. If the scheme for its reconstitution of which something was said in a previous letter is carried into effect, the British Medical Association will have no money to spare for the furtherance of scientific research, for the whole of its income will be swallowed in the cost of the machinery of administration.

The College of Surgeons is a wealthy body, but it is governed by a coterie of hospital surgeons elected by the Fellows who are only a small fraction of the commonalty which consists of the Members. Over and over again determined efforts have been made to break up the College

oligarchy and establish a representative form of government, but the President and Council rule like the gods of Olympus and let the heathen rage at the foot of the heavenly mountain as they list. From time to time some one professing to be a reformer is elected to the Council, and inexperienced persons look for the dawn of a new day. But it is with College reformers, as with the month of March, according to the proverb: they go in like lions but speedily subside to a lamblike tenderness for abuses. If the reforming conscience shows signs of reawakening, it is lulled to slumber again by a well-paid examiner-ship or two. Immense sums of money have been wasted on bricks and mortar, and the management of the institution is in many ways extravagant. A surgeon whose name is a household word throughout the medical world is reported to be about to stand at the next election which will take place in a few weeks, and rumor credits him with the intention of issuing what will be virtually a wholesale condemnation of the policy of the present administration of the College. He holds that but for the existence of gross abuses, the College would be well able to maintain the Laboratory which is now threatened with extinction. If he carries out his threat, there will be what Sir Lucius O'Trigger calls "a very pretty quarrel," the issue of which would in all likelihood be the reconstitution of the College on a more democratic basis. But the College of Surgeons has been threatened with similar anathemas before now and nothing has come of them. The Council room of the dingy building in that old-fashioned legal rookery known as Lincoln's Inn Fields (where the fields had disappeared even in the spacious times of great Elizabeth) has a wonderful sobering effect on the most perfervid temperament. It needs an exceptionally strong man to put himself in opposition to the heads of his profession, and

Enterprises of great pith and moment

With this regard their currents turn awry.

Mr. Anderson Critchett who was recently appointed Surgeon-Oculist to the King has just retired from the staff of St. Mary's Hospital after twenty years' service. He inherited a great name, but he has proved himself fully worthy of it. In spite of the competition of Pagenstecher, to whom the Princess Christian has sent half of the British aristocracy, Mr. Critchett has had many opportunities of treating the eyes of the "upper ten." He is equally popular with his own profession, and with the higher Bohemia of artists, actors and what a well-known peer calls "writing fellows." He is a sayer of good things as may be gathered from the following story which I find in the *St. Mary's Hospital Gazette* for this month: A man having been jammed in a traction engine was brought to the hospital and admitted. As he was suffering from diplopia, Mr. Critchett's advice was sought. Discovering a paralysis of one of the ocular muscles, he gave him large doses of iodide of potassium. The house surgeon wished to try galvanism. After

a few weeks the paralysis was cured, and the diplopia had vanished. The house surgeon asked Mr. Critchett which treatment he thought had cured the diplopia. Mr. Critchett said, "I think we might cry 'honors easy,' for I took him by assault and you by battery."

TRANSACTIONS OF THE FOREIGN SOCIETIES.

French.

PRIMARY SUTURE OF NERVE-TRUNKS AND THEIR FUNCTIONAL RESULTS—CEPHALALGIA IN NEPHRITIS—MASSAGE AND MOVABLE KIDNEYS—INTESTINAL WORMS AND APPENDICITIS.

REYNIER, at the Société de Chirurgie, May 1, 1901, said that contrary to the usual opinion he had become convinced that nerves are susceptible of early suture and very prompt union and restoration of function. Evidently an embryonal tissue formation occurred between the cut ends of the nerve, which did not materially interfere with the function in any way at all. In 1894 Monod reported a patient in whom he had sutured the radial nerve at once and in a few days had found that there was no loss whatever of the motor functions in the extensive group of muscles. In a recent case he had sutured the external popliteal nerve and demonstrated that the sensory functions were hardly interfered with a few days afterward and a month later the motor functions were shown to be normal under electrical reaction tests.

WALTHER in the discussion desired to report a curious observation of his own. An automobile conductor had received a severe sprain of his wrist which soon showed injury of the radial and median nerves. There were sensory and motor damage over the distribution of each and soon the muscles began to atrophy and other trophic symptoms appeared. The joints became rather stiff. This continued with hardly any change, except perhaps a slight improvement for about eight months. At this time an amelioration occurred of such a character as to suggest that union and repair in the torn nerves had taken place. Fourteen months after the accident there was tenderness over the median nerve, but the muscles had regained most of their action although not their strength and the anesthetic zones had almost vanished.

QUÉNU said that Reynier had stated that the primary suture of nerve-trunks can be followed by immediate restoration of motor function. In the instances upon which he founds his opinion, it is possible that the nerve gives off branches proximal to the point of section, which then vicariously take up the function at once. In his own experiments fifteen years ago upon animals he has again and again obtained primary union of the nerve-ends macroscopically, but upon microscopical examination he found that, however good the union of the fibrous sheaths might be, the axis cylinders were not united, but their ends

rather folded and bent over upon themselves and otherwise deformed. Upon the basis of such observations, frequently repeated he feels sure that Reynier's contention is not founded on fact, but has some explanation like the above of early division.

POIRIER argued that Reynier can not possibly have obtained immediate restoration of function beyond the point of division, because this is impossible in the nature of things. Even if it were practicable to place the divided ends of the axis cylinders end to end it would be impossible to avoid the distal degeneration.

RICARD like Quenu had often made observations as to nerve-suture in animals and, although he has often seen the damaged trunks grow together at once, he has never once had any restoration of motor action occur.

POTHERAL claimed that judicious massage and use of electricity are two therapeutic elements which hasten very materially the return of the nerve activities. In one of his patients eight months after accidental division of the median and cubital nerves, he had obtained decided recovery of function within three and one-half months after suture with primary union, by massage and electricity. In another patient he united the divided nerves within three hours of their separation and under electrical and massage stimulation had seen motor function return in three weeks. They had also absolutely checked any atrophy whatever.

RICHELOT reported the results of massage upon movable kidneys as advocated by Rosenthal. In a number of patients the pains and many of the other symptoms were seen to disappear. The number of applications varies from twenty to thirty and their effect is sometimes marvelous. The theory of their actions is that the pain and many of the other complaints in the displaced kidney are due to simple congestion inherent in the abnormal circulatory conditions. The massage properly carried out appears to dispel this congestion and therefore to relieve the symptoms more effectually than nephorrhaphy itself does sometimes.

GUILLAIN, at the Société Médicale des Hôpitaux, May 3, 1901, related in the name of Marie and himself an experience with the cephalgia of chronic Bright's disease of the kidneys. The headache had been chronic and of very long standing and entirely resistant of all known means. Finally arguing that probably the pain might be due to augmented pressure of the cerebrospinal fluid, he made a lumbar puncture and withdrew about six cubic centimeters of fluid under high pressure so that it ran in a veritable jet. Several days have elapsed since this was done and the immediate cessation of pain at the time of the operation had continued so that the patient is much more comfortable than for a long time previously.

LE GENDRE stated that he, too, had seen several examples of the alleviation, not only of the headache but also of the myosis and insomnia in

uremia due to the withdrawal of cerebrospinal fluid.

NETTER noted that the quantity withdrawn was very small and seemed to indicate that the pressure had been very greatly increased. Therefore a greater quantity could have been taken away with advantage. In children sick with meningitis as much as forty or fifty cubic centimeters can be withdrawn. Guillain in reply said that the small quantity of six cubic centimeters was taken only because they felt it was wise to stop the flow then.

TRIBOULET stated that Metchnikoff has recently shown that intestinal worms may be associated with appendicitis. In the presence of such an appendicitis coexisting with worms, one may ask, Is there not therefore a true and a false appendicitis? In a patient of his own who was finally afflicted with round worms there were all the regular and the classic symptoms of appendicitis, prostration, fever, nausea, vomiting, pain and tenderness at and about McBurney's point. There was also a tendency to a return of the symptoms at her monthly periods.

PIERRE-MERKLEN said that this patient was evidently suffering from a true appendicitis, because she had all of the subjective and objective symptoms with recurrences, especially fever vomiting and focal pain. The dependence of the recurrence upon the menstrual epochs was probably purely accidental by the circulatory activity and congestion. While the worms may have been the pathogenetic factor of the disease, it is highly likely that the appendix remains diseased and is suitable for a removal during an interval.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

Fifty-Second Annual Meeting, Held at St. Paul, Minn., June 4-7, 1901.

(Continued from page 927.)

GENERAL SESSION.

THIRD DAY—JUNE 6TH.

AFTER the acceptance of the report of the Nominating Committee, which presented the names of the officers mentioned last week (see *MEDICAL NEWS*, page 919) the regular order of business was proceeded with.

Vice in the Philippines.—Miss Susan B. Anthony, the President of the National Woman's Suffrage Association, and the Reverend Anna M. Shaw, of the Executive Board of the Association, were, by special privilege, allowed to address the members of the Association for five minutes, each, on the question of "Moral Conditions in the Philippines." They came from Minneapolis where a convention of the Woman's Suffrage Association was being held. They appealed to the Association to memorialize Congress in order to prevent the existence

of vicious conditions in the Philippines, and preclude the possibility of the importation into the Archipelago of abandoned characters from civilized countries. Their proposal did not, however, reach the stage of a resolution and was not voted upon.

State and County Societies.—Dr. MacCormack of Bowling Green, Kentucky, then presented the following resolution which was adopted:

"Resolved, That this Association cordially indorse the plan proposed by the Committee of Reorganization for a uniform system of organization of State and county societies in affiliation with this body and the Secretary is hereby instructed to correspond with the officers of each State society and urge the adoption of such plan in so far as it may be applicable, and that he shall report to the next annual meeting the result of such correspondence."

This involves the reorganization of county and State medical associations on the line of recent work in New York so that membership in a local society includes membership also in the general body.

The Code of Ethics.—Dr. L. Duncan Bulkley, Secretary of the Executive Committee, presented a recommendation that a committee of three be appointed to revise the code of ethics. The question was considered so important that it was proposed to call the roll, in order to prevent any but delegates from voting. It was suggested, however, that the roll call would occupy all the time until adjournment would be necessary, and so the matter was left over until the next annual session.

Annual Oration on Medicine.—Dr. N. S. Davis, Jr., of Chicago then delivered the annual Oration on Medicine. The subject was "Internal Medicine in the Nineteenth Century." An abstract of the address will be found in the *MEDICAL NEWS*, June 8th, page 889.

FOURTH DAY—JUNE 7TH.

Original Research Fund.—Dr. L. Duncan Bulkley of New York announced the gift by John D. Rockefeller of a fund of \$200,000 for the prosecution of original research in medical science. The distribution of this fund is to be under the direction of Dr. William H. Welch of Johns Hopkins University, who is the Chairman of the Committee on Scientific Research of the American Medical Association.

Oration on State Medicine.—Dr. George M. Kober of Washington, D. C., then delivered the Oration on State Medicine. Its subject was "The Progress and Tendency of Sanitary Science in the Nineteenth Century." An abstract of the address will be found in the *MEDICAL NEWS*, June 8th, page 894.

The Army Canteen.—The Committee on

National Legislation reported favorably on the resolution for the presentation to Congress of a memorial asking for the restoration of the canteen in the army. This report was adopted unanimously and with great enthusiasm.

Dr. Judson Daland of Philadelphia, was appointed to represent the American Medical Association at the World's Congress on Tuberculosis to be held in London in July.

Reception to New President.—Drs. Marcy and Priestley escorted the new President of the Association, Dr. John A. Wyeth of New York, to the Chair. Dr. Wyeth thanked the Association felicitously for the honor they had conferred on him and expressed the hope that he would greet them all at Saratoga in the midst of a large and enthusiastic meeting of the Association.

The Session then adjourned to meet next year at Saratoga.

SECTION ON SURGERY AND ANATOMY.

THIRD DAY—JUNE 6TH.

Hemostasis in Amputation at the Hip-Joint.—Dr. John A. Wyeth of New York said that his method was first made public in 1890. He now has complete histories of 267 cases, which he presented to the Section under three groups, to-wit: (1) Neoplasms, of which 131 were sarcomata, and 5 epitheliomata. (2) Septic infection, 94 cases, 16 deaths: 17 per cent. mortality. (3) Injuries, 36 cases 23 deaths, mortality 63.9 per cent. This is relatively high, most of the cases dying from shock induced by hemorrhage from the injury, which in most cases was that of car-wheels or similar great weights. In all of these cases he now uses a preliminary venous infusion of hot salt solution and feels that this procedure is of paramount importance, not only in these particular conditions, but in the face of all similar surgical emergencies. Whereas prior to the introduction of his technique the mortality was estimated at 64 per cent., it is now but 19.8 per cent.

Autoplastic Suture in Hernia and Other Ventral Wounds.—Dr. L. L. McArthur of Chicago said that this type of suture had been recommended for certain other operations, but had not to his knowledge been used for hernia. The strips are prepared as follows: On either side of the incision made in the internal oblique, bands which promptly roll up into cords about an eighth of an inch wide are cut from above down. If an ordinary Bassini operation be done, after the replacement of the sack, the wound more closely resembles a shoe just ready to be laced than anything else. To one of the sutures is now tied a bit of slender silk on a needle, and with this armature the auto-suture is cast continuously to the outer angle of the wound. At the termination of the last stitch the remaining portion of the band is split. The end which still bears the thread is

threaded once more through the tissue and then the two are tied together. This mode of terminating the auto-stitch is rapid and convenient. In a similar way the external oblique is closed, the skin incision being sutured as one pleases. The length of these ribbons varies from four to six inches. Their tensile strength is 17 to 20 pounds. Being fibrous tissue and elastic, it is not necessary for a continuance of their life that they should have a blood-supply, for they live normally by osmosis. Histology appears to show, after a series of most careful sectional examination in animal tissues and in one case of death in a man where this technic had been used, that there is a definite continuance of the life of the tissue. However this may be, in the seventeen cases in which it has been used there had been no instance of post-operative rise of temperature. If this be shown to be a continuous factor, it will prove that this rise which is so constantly present after closing wounds with the ordinary absorbable suture, is due entirely to the dissemination of their constituents through the system.

Dr. Powers of Denver has used the method and cordially endorsed it. Dr. Eisendrath of Chicago tried it with excellent result in a boy of ten. He does not believe that the fears of its author are grounded, namely, that the muscle is not strong enough to give suitable ribbons in women and children. Dr. Eastman of Indianapolis said that without wishing to pick flaws in a technic which was so new and interesting, he desired to ask two questions: Is it not difficult to get sufficient length of ribbon, and, again, does not the external oblique frequently tear during the manipulation? In closing Dr. McArthur said that he had not encountered these difficulties. In adult men, where alone he recommended the technic, he had had no difficulty in getting sutures six inches long.

A New Method of Skiagraphic Diagnosis for Renal and Ureteral Surgery.—Dr. L. E. Schmidt and Dr. G. Kolischer of Chicago presented this paper. Their efforts had been crowned with success, largely because of the very flexible and absolutely harmless wires of lead and antimony which they had introduced into the ureters. This composition is particularly soft and flexible and casts a beautiful picture in skiagraph. Ureters, which by cicatricial distortion and various forms of dilatation of the pelvis are deflected from their normal course, are accurately shown by this process. In the large dilated pelves of hydronephrosis, for example, the wire seems invariably to follow the wall of the sack in such manner as to give a very fair indication of its size and position.

Prostatotomy vs. Prostatectomy for Prostatic Hypertrophy.—Dr. Ramon Guiteras of New York, passing rapidly over the various measures which are still somewhat in vogue in Europe for the relief of this condition, but

which here have been abandoned, said that within the last few years such advances had been made toward perfecting prostatotomy and prostatectomy that no progressive surgeon who aspired to do any genito-urinary work could afford to be unfamiliar with both of them. He advocated what might be called the vesico-rectal method. Two fingers placed in the rectum afford the most certain aid in doing rapid work. In conclusion, he said that, while in general he might be considered to favor prostatectomy, the whole problem was too grave a one upon which to dogmatize. There were many patients whose condition was such as imperatively to contra-indicate the radical operation. There were a large number in whom the distinctly palliative treatment of Bottini was the only justifiable course; the unfortunate delays which as yet are invariable in all prostatic cases create a class of feeble old men on whom no operation is justifiable.

Prostatectomy.—Dr. Eugene Fuller of New York, said that the quasi-moral environment of these cases is the most important factor which the progressive surgeon has to struggle against. In almost every case objection is made to any form of radical operation because of the patient's extreme age. Under proper surgical management, the mortality of prostatectomy is not over 8 per cent. or 10 per cent. The argument in favor of the Bottini is that it is easy of accomplishment; any one with some experience in the manipulation of urethral instruments being able to perform it, while prostatectomy calls not only for a well-trained surgeon, but one especially skilled in this work.

Permanent Catheterization.—Dr. J. R. Eastman of Indianapolis embodied in this paper a report of fifteen cases in which the catheter had been retained for from two to sixty days, with a history of the results obtained. He submitted the following details: (1) The traumatic urethritis was not marked enough to do harm; in the sixty-day case, the catheter was not at any time removed. (2) The catheter best suited for this work is of large size and of soft rubber. (3) Boric-acid solutions are not satisfactory for irrigation, as the crystals tend to occlude the lumen of the tube. (4) The catheter must be introduced just within the bladder. (5) It gives absolute rest to the part—a sovereign aid in treatment.

Fallacies of Treatment in Urethral Diseases.—Dr. Robert H. Greene of New York said that from a series of thirty cases of prostatic hypertrophy which had been subjected to the most careful histological study by Dr. Harlow Brooks and himself, he feels certain that the recent views expressed by Cienkanowski, that the prostatic tumor is of inflammatory origin rather than cystoadenomatous, is correct. If it be eventually shown that gonorrhea has any etiological bearing on this disease of old age, it will awaken broad interest among the young.

Perineal Prostatectomy.—Dr. Parker Syme of New York believes that this will be the operation of the future. He exhibited a very ingenious device consisting of a flexible rubber tube with a bulb at one end. A measured quantity of water dilates this bulb $2\frac{1}{2}$ inches. Collapsed, it is introduced into the bladder through a central perineal incision; it is then filled with water and drawn down by an assistant. This most beautifully, and even in difficult cases, brings the prostate into clear view. He invariably removes the left lobe, then the middle and last the right. At the end of seven days the patients are usually able to sit up. He passes steel sounds every third day for a period which gradually increases. In closing he said that the mortality would be much lower when the profession knows as much about this operation and acts as promptly as it does in appendicitis.

Dr. Robert H. M. Dawbarn of New York, in opening the discussion of this genito-urinary symposium said that he preferred to leave the discussion of the papers to others. He thought the Section would be more interested in seeing a device for bladder drainage than in hearing him talk. It consisted of a douche-bag, some rubber tubing and a T-tube. The principle is that of intermittent siphonage which was applied to dentistry twenty-five years ago by Snow of Buffalo. One of the most unique and ingenious points in the whole apparatus is the establishment of the siphon by the simple casting of a single knot in the drainage tube. The method keeps the bed as dry as the De Pezzer tubes or the Kader method or the plan of Blasucci. Another advantage which it has over the more complicated and somewhat expensive devices is its extreme cheapness. One can easily wash out the thick, stringy muco-pus, slime and calcareous material from these filthy bladders which so often give trouble by other methods. Three distinct things can be accomplished by this ingenious bag. (1) The bladder is continuously drained, the time which the nurse has to give to the apparatus being simply long enough to fill the bag once every six hours; (2) the bladder can be so painlessly washed out that it has repeatedly been done without awakening the patient; (3) by interposing a flask in the tube leading from the bladder absolutely uncontaminated specimens of urine can be obtained for examination.

Dr. Rokey of Portland, Oregon said, that not enough attention has as yet been devoted to the prostate. Why is it that while indefatigable researches have been made in the diseases of women, many of which have terminated in a happy liberation of the young and the old from previously hopeless conditions, old men should be left neglected to die a hopeless and horrible death? He prefers the rectovesical technic and his mode of procedure is practically analogous to that of Guiteras.

Dr. Andrews of Chicago indorsed the auto-suture saying that its chief characteristic was the absence of post-operative temperature. Prostatectomy in the mid-perineum is the operation of the future. While he regards Syme's apparatus as of great value, he believes that Ferguson's prostatic retractor is perhaps in some respects better. It is a sort of spoon, about No. 25 French in size. It is inserted via the penile urethra, rotated through 180 degrees, and is then thrown up against the pubes. This at once accomplished two things, i. e., it drags the prostate into view and, by putting considerable tension on the tissue, avoids hemorrhage.

Dr. McGowan of Los Angeles believes that Dr. Greene's evidence is of very little value. The hypertrophic prostate is not of inflammatory origin.

Dr. Guiteras in closing said we shall soon, it is hoped, have not only a good technic, but an interest awakened in this important work which will lead to a recognition of the fact that early operation and radical operation is as much to be desired in these cases as it is in appendicitis.

Dr. Fuller in closing said that the Chinese and Asiatics in general are exempt from prostatic hypertrophy, although it is well known that probably more than all other nations they suffer from venereal disease. The bladder does regain tone and there is hope in the majority of these cases.

Dr. Greene said that he did not expect his theory to be accepted without marked opposition. If correct, however, it would effect very great changes in the treatment of urethritis, and probably develop a new and perhaps less radical operation than prostatectomy.

Pneumectomy and Pneumotomy.—Dr. J. B. Murphy of Chicago defined chest surgery as an opening of the mediastinal or pleural cavities. Until the present time but little progress has been made in the surgery of the chest, because of the extraordinary dangers which have attended all work in this region. The dangers he classifies as follows: (1) Primary pneumothorax, (2) primary hemorrhage, (3) secondary pneumothorax, (4) sepsis. The effects arising in primary pneumothorax are probably absolutely mechanical. We must remember that the mediastinal septum is not a solid body and that with a decrease of the atmospheric pressure on the uninjured side there will naturally be a bulging from the injured area. How this can best be overcome is probably answered by the immobilization of the mediastinum by clamps on the hilum of the lung which can thus be retracted, or by insufflation. In perfecting their insufflation apparatus, Matas and Parham have done a vast work for the surgery of the chest. The next difficulty to be encountered and overcome is hemorrhage. Of special danger is the hemorrhage from the internal mammary ar-

tery which gives a more rapid flow than any other vessel of the third magnitude. There are three important dangers from hemorrhage from the tissue of the lungs as follows: (1), if the azygos vein be torn, air embolism is probable; (2) the subclavian, but this occurs only in apical tuberculosis; (3) rupture of the right auricle in kindred conditions where it is known often to be adherent to the lungs. Secondary pneumothorax resulting either from a re-opening of the cut or a dividing of a bronchus is best overcome, together with the hemorrhage, by the angiotribe. The closure of large bronchi is most difficult, although it is to be believed that here again this instrument will come to our help. The sepsis arises from two sources. It may be primary-induced at the time of the operation, as in any other wound. It may at this time be caused by the breaking of a focus of pus. It may arise secondarily from infected bronchi.

Foreign Bodies in the Trachea and Bronchi.—Dr. De Forest Willard of Philadelphia said that for removal of foreign bodies from the air passages inversion of the child and succussion are dangerous unless the means for immediate opening of the trachea are at hand, as lodgment in the larynx may quickly suffocate the patient. A careful physical examination, with study of all the symptoms, is absolutely essential to determine their location and the lung condition. A low tracheotomy should be at once performed, a large opening made, the sides of the slit being kept wide apart by silk stitches. Through this opening expulsion is common and is ordinarily to be expected. If the object cannot be secured through the trachea, an opening into the chest and incision of the bronchi themselves is only justifiable when an artificial apparatus, like the Fell-O'Dwyer, is at hand, and oxygen is available. Without these accessories, combined with the skill of a cool, cautious operator, the search for a foreign body through the chest walls is attended with such dangers that it is ordinarily unjustifiable. Since the introduction of the Parham-Matas instrument many of the dangers of lung surgery have been removed.

Treatment of Empyema.—Dr. J. H. Dunn of Minneapolis said that early in the disease, except in the case of certain contra-indications, one or more should be expected, but there is little use of doing this unless a large opening is made. At least $2\frac{1}{4}$ inches of bone should be removed. Immediate irrigation is to be deprecated. Simple drainage and wiping out is sufficient. Probably there are no indications for irrigation at the time of the operation and it is very doubtful if at any time these exist. To hold the passage patent a light gauze packing is found to be much better than a rubber tube, which is not only apt to drop in or out, but sometimes provokes the formation of a fistulous opening which is difficult to close.

In these cases subsequent infection should be most scrupulously guarded against. Estlander's operation is giving place to Schede's in which the greater part of the chest-wall is removed and the skin allowed to fall in upon the retracted lung.

In the discussion of these papers, Dr. Bernays of St. Louis said that he hoped the time was not far distant when the surgeon would have the care of a great many cases of pulmonary tuberculosis which now fall to the general practitioner. They will naturally be those in which a mixed infection has occurred.

Dr. Dunn's observations as to the value of bacteriological examination of all pleural fluids is very important. He agrees that irrigation is ill-advised here as elsewhere, and believes free drainage to be all requisite.

Dr. Barbat of California said that he had had some success with lung surgery for which he had devised an insufflator similar to Parham's. He passes the air, however, through hot water which not alone elevates its temperature and moistens it, but renders it sterile as well.

Dr. Wills of Los Angeles said that none of the Eastern members had one-half the interest in lung surgery that is felt by the surgeons of the Pacific coast. It is time that some active steps were taken to stop the alarming influx of hopeless tuberculous patients in regions where, at least until recently, the tubercle germ was practically unknown. If they must be sent from the East, let it be before they are in a hopeless condition.

Dr. W. W. Keen of Philadelphia finds that a pair of curved Hagedorn needles passed in through a part of the lung and out again accomplishes the formation of sufficiently dense adhesions within twenty-four hours. In a case of sarcoma of the chest-wall he had successfully resorted to the expedient of sewing the lung fast all around the large thoracic opening to prevent primary pneumothorax.

Dr. Means of Columbus, Ohio, cited two cases of thoracic surgery. In one of them, a shot-gun wound, the pleural cavity was filled with a mixture of clothing and newspaper. After hearing what Dr. Murphy had said regarding the deviation of the mediastinal septum and its mode of prevention, he thought that this very fact which he had believed would be fatal, had by steadying the septum actually preserved the patient's life.

In closing the discussion, Dr. Willard spoke of secondary emphysema which is pretty sure to develop in the event of failure to close a bronchus. This can usually be successfully accomplished with a fine staphylorrhaphy needle. This emphysema is progressive and may cause death. Because of the possibility of this complication it is probably better to drain than to close. Adhesions should always be produced prior to opening a cavity which would otherwise communicate with the pleural cavity.

FOURTH DAY—JUNE 7TH.

Indications for Operation in Calculus, Nephritis and Ureteritis.—Dr. C. L. Leonard of Philadelphia said that within a very recent time the X-ray has shown the unsuspected relative frequency of ureteral calculi. It has also demonstrated that the writer has an extraordinary tolerance for these concretions. They appear in many cases to dwell within the lumen for years without causing an ache or a pain. Now that we have a means of keeping the stones under immediate and accurate observation, fewer exploratory incisions will be necessary. That this method is a sure one has been shown by observation on 165 cases where the prognosis made by the X-ray was either correct or was shown to be faulty because of defective technic. This has been a means of vastly improving it. Over 50 per cent. of the calculi have been found to be in the ureters. The urine, which till now has always been thought to be of paramount import, has been shown to have a very variable value. A large kidney is usually looked upon, in the absence, of course of neoplasm, as a favorable sign and one contra-indicating operating for a ureteral stone, for it has the energy to drive the stone before its larger volume of urine. A small kidney, on the other hand, is in a measure an evil omen, for with no *vis a tergo* to dislodge it the calculus will very likely have to be removed. It is of particular import that efforts be made to clear the urine of as much pus as possible prior to operating. Multiple calculi do not always indicate operation. Inter-ureteral operations have been much advanced by the X-ray and they are perhaps best practised by a special technic through a primary suprapubic cystotomy. Finally, from the great class of cases where conservatism is the best treatment, the X-ray has given us a certain method of separating those in which immediate operation is indicated.

Acute Infection Cholangitis and Cholecystitis as a Complication of Gall-Stones.—Dr. D. N. Eisendrath of Chicago read this paper. In the normal state, the ducts, beyond the ampulla of Vater are sterile. Probably the bile inhibits the growth of the colon and typhoid bacilli. Infection is probably the causation factor in stone formation. The effect on the hepatic cells is to inhibit their normal bactericidal power.

Dissecting Abscess of Abdominal Wall.—Dr. J. B. Bullitt of Louisville, Ky., reported at length a case in which six weeks after the subsidence of typhoid fever there developed a rapidly spreading abscess which proved to be the abdominal wall.

In the discussion, Dr. Smythe of Memphis reported a case which illustrated the extent and fatality of gonorrheal infection. To a surgeon of the Southern Mississippi Valley, the discussion on gall-stones had been particularly

interesting. Jaundice seems but rarely to be associated with gall-stones. He always irrigates the bladder with silver nitrate after removal of stones and, if the walls are not too diseased, he closes it by a special technic.

Dr. McGowan of Los Angeles asked Dr. Leonard how positive he could be in diagnosing renal calculi with the X-ray. He cited two cases of so-called burns which had been under his care. In each he was obliged before any progress began, to excise the poisoned tissue just as thoroughly as though it had been neoplastic. One healed in a year, the other in eighteen months.

Dr. Crane of Vermont said that the depth of the shadow is dependent on the atomic weight. Uric-acid stones, for example, do not weigh as much as those of calcium oxalate and the shadows vary resultingly.

Dr. Davis of Omaha has experimented to find the nature of the nucleus of gall-stones. His findings lead him to corroborate the statement that their nuclei are almost always clumps of germs. He protested against the closure of the bladder; it should always be drained till all signs of infection have passed away.

Dr. Dunsmore of Minneapolis wished to emphasize the importance of "clinical sense." He thinks the gall-bladder can often be closed to advantage.

Dr. Rodman of Philadelphia said that in his city the X-ray had been so perfected that its findings were now considered more reliable than the "clinical sense" of anybody. Burns no longer occur in the practice of experienced operators. This is true even when the X-ray is used on the face and the eye.

Dr. Lemon of Milwaukee said that the question of dissecting abscesses of the abdomen after typhoid was important for he believed them to be more frequent than the literature would seem to show. In his own experience were two cases.

Dr. Bloodgood of Baltimore spoke of the relation of gall-stones to pancreatitis. Opie has shown that the anatomy of the pancreatic and biliary ducts and their relation to each other and to the duodenum is a very important factor in the etiology of both these diseases. It teaches a very important lesson as to the desirability of always draining the gall-bladder rather than closing it. If a small stone partially obstructs the papilla of Vater, some bile will be forced into the pancreas. Since the papillary mucous membrane is normally septic, this bile is infected. We then have those conditions present which are known to produce acute hemorrhagic pancreatitis, blocked ducts and infection.

Dr. Porter of Fort Wayne believes that the colic is not produced by the passage of stones, as is usually supposed. The pain and the jaundice are both due to infection and inflammation.

Dr. Leonard in closing said that he wished to impress on the Section the fact that the X-ray, with its power of positive diagnosis, has introduced into the surgery of renal stones a conservative element which would and could not otherwise exist. His experience leads him to believe that burns, so-called, are not produced by the ray, but by an unknown factor. He has had two severe burns himself and yet he rarely if ever puts his hand in the line of the ray. Whatever it is that does the burning seems, in his case at least, to have been around the tube. A grounded screen has afforded him protection of late.

Dr. Eisendrath in closing said that Mijake, a Japanese investigator, has shown by a series of experiments on dogs that neither infection alone nor obstruction alone will cause the development of stone, but in the presence of each calculi are almost certain to form.

Dr. Thompson of Scranton, Pa., showed the head and part of the shaft of the femur of a man, aged sixty-two years, on whom he had performed Gillette's operation for non-union. Making a bone-flap, which consisted of the great trochanter and a part of the shaft, he drove a solid-silver nail directly toward and to the head of the bone. A smaller nail held the flap in place; the wound was closed and a plaster spica applied from axilla to toes. In six weeks the man walked without a limp.

A Simple Operation for the Treatment of Hemorrhoids.—Dr. J. R. Pennington of Chicago read this paper. These tumors are simply angiomas. The indication is to remove them *in toto* with the least possible destruction of normal tissue. He slits the mucous membrane over each tumor, enucleates and excises it. A stream of salt solution courses over the site of the operation while this is being done. These cases recover in an unusually short time; in four to five days they are usually out of bed and at work.

SECTION ON PRACTICE OF MEDICINE.

Third Day—June 6th.

Modified Typhoid Treatment.—Dr. T. B. Greenley of Meadow Lawn, Ky., said that little drug treatment is needed in typhoid fever. He has used the Woodbridge method of treatment, but does not believe in its efficacy. The drugs he has found most satisfactory are quinine and acetanilid. He employs one grain of each every three of four hours. In severe cases every two hours or even every hour. Baths or spongings should be directed. Turpentine is the best remedy for tympanites. In fact, in Dr. Greenley's experience, it is almost a specific. Turpentine is an excellent prophylactic against hemorrhage. This is true, not only in the severe hemorrhage of the third week, but also in the hemorrhages from the

nose in the early stages, if these are giving inconvenience. Under these remedies typhoid fever has decreased in fatality. The disease has lost most of its terrors even in conditions where good nursing is hard to obtain, though of course nursing is the most important element in the care of these cases.

Medical Shock.—Dr. O. T. Osborne of New Haven, Conn., read a paper on this subject. He said that the term heart failure has fallen into disrepute. It is true that in many cases the term was used to cover the ignorance or carelessness of physicians. There is, however, a set of symptoms often serious, sometimes fatal, with failing heart as a prominent symptom, in which no sufficient organic lesion can be found to account for the patient's condition. These symptoms are not unlike those which develop in what is known as surgical shock. The underlying basis of the condition is evidently a disturbance of the vasomotor mechanism that allows diversion of the blood into paralytically dilated veins and so permits reduction of blood-pressure. We need a term for these conditions when no direct cause can be pointed out in some definite organic change.

Definition of Medical Shock.—Dr. Osborne proposes to call all cases medical shock in which the prominent symptom is a failing heart without any change of the muscular apparatus or valvular mechanism to account for the failure. That such cases occur, every practitioner knows. The main symptoms are a rapid, excited heart, with decreasing energy, great loss of heat from dilatation of the peripheral vessels as the result of paralysis of the vasomotors, weakness and faintness, with pallor because the blood is mainly contained in the large abdominal veins. Blood-pressure is so much reduced that the heart-muscle itself suffers in its nutrition because of defective circulation.

Analogies with Surgical Shock.—In surgical shock the symptoms are prone to develop after injuries to special parts—the head, the abdomen, the testicles, important nerves and the like. Medical shock is apt especially to develop during affections of these same parts. Pain is an important causal factor in the production of surgical shock. It seems to be also in the production of medical shock. This pain need not necessarily be very severe. In weak patients even slight pain may cause serious reflex symptoms. The more or less imaginary pains that hysterical or neurasthenic patients suffer from may well produce as much medical shock as if they really suffered all the pain they imagine. Pain reflexly produces vasomotor paralysis and consequent reduction of blood-pressure. This soon adds to the heart weakness.

Medical Shock in Typhoid.—This condition of progressively failing circulation is often seen in typhoid fever. The heart is weakened

by the toxins of the disease. The irritation of the intestinal mucous membrane causes active and passive congestion in the abdomen that still further disturbs the circulation. If tympanites comes on to add a mechanical factor of interference with the circulation, heart and vessels, it can be readily imagined that symptoms of failing heart may develop.

Treatment of Medical Shock.—This must be like that of surgical shock. As absorption from the stomach is interfered with by the failure of the circulation, the drugs indicated must be given hypodermically. Strong stimulants must be employed and they should be administered in full doses. Absorption even from the subcutaneous tissue is slow. This accounts to a large extent for the tolerance for large doses of drugs of patients suffering from such conditions as delirium tremens. Medical shock and heart failure are practically convertible terms, but we seem to have in the analogy with surgical shock some rational basis for the introduction of the new term.

Multiplication of Terms.—Dr. Lillie of St. Louis said that the new term seems to add nothing to our realization of the conditions that exist. The word shock should not be used unless some suddenly developed condition is implied. The introduction of the new term seems scarcely justified since it would only lead to needless multiplication of terms.

Medical Shock Clinically.—Dr. James J. Walsh of New York said that the term medical shock would be helpful to the practitioner and student of medicine, because it assumed the existence of a medical condition analogous to surgical shock, that is, a failure of function without pathologic lesion to account for it. Since heart failure has been tabooed by boards of health there has occasionally been felt the need of a term to describe certain cases of failure of circulation without serious organic involvement. Dr. Osborne's term is illuminative, too, since it suggests the need for prompt and effective medication. Sometimes these cases are allowed to proceed without any realization of how suddenly they may become serious and even fatal. The necessity for hypodermic medication is an important practical point, for at times, though sufficient stimulant drugs have been given they have failed of absorption and the condition continues to grow worse.

Abuse of Heart Stimulants.—Dr. Kelsey of Minneapolis said that sometimes, when it is known that patients will eventually need heart stimulants, the administration of these remedies is begun early in the disease. Of course, it is always a serious question in infectious and especially exhausting diseases to know when to begin the employment of stimulant medication. Probably more harm than good is done, however, by beginning before there is some absolute indication for them. Their use by anticipation of symptoms only serves

to make the individual accustomed to their action and so detracts from their effect when they are really needed. This mistake is often made and with the best intentions in the world. Dr. Kelsey detailed a recent case in which heart stimulants failed to produce the desired effect and the reason seems to have been their persistent use in the case for some time before the development of any critical symptoms.

Weak Heart without Lesions.—Dr. Webster of Chicago said that there is often a condition of weakness of heart without distinct lesions. The valvular apparatus is unaffected and the muscle seems healthy, yet the heart acts poorly. Often this is due to toxic conditions and the resulting failure of nutrition. In these weakened states reflex nervous inhibition is especially active. Dr. Webster once saw a rabbit about to be experimented on die from sheer fright. The animal was literally scared to death. The heart was found contracted and practically without blood. The large abdominal veins were found widely distended and filled to repletion with blood. The animal had bled to death into its own abdominal veins. This condition is not impossible in human beings. It is due to disturbance of the vasomotor functions and consequent paralytic venous distention. That it is analogous to shock under some circumstances cannot be denied.

Spread of Tuberculosis.—Dr. E. Napoleon Boston of Philadelphia read a paper discussing the spread of tuberculosis because coughing caused a disseminating of tubercle bacilli through the air. This is perhaps not so dangerous as has been thought, but is certainly an important method for the spread of virulent infectious material. Experiments have shown that the dust of sanatoria for consumption does not always contain tubercle bacilli and that those found are often inactive. Flügge does not think that dried sputum of tuberculous patients is virulently contagious. The bacilli do not long withstand drying. The bacilli contained in recent moist sputum are virulent and those on the minute droplets of sputum ejected during coughing or sneezing or even talking may convey the infection.

Experimental Investigation.—Solution of cultures of *Bacillus prodigiosus* have been placed in the mouths of patients and after some time cultures of this microbe could readily be obtained in the room. Curry found that when a plate was placed six inches away from tuberculous patients it almost invariably became infected during coughing spells. A single exposure of the plate was sufficient to infect it in the early morning hours. Many more colonies were found in plates exposed in the mornings than in the evenings. Ravenel showed that tubercle bacilli were deposited on all of a series of pieces of wood placed in the bottom of a nose-bag used by tuberculous cattle. These cattle were not severely infected, for one of them was alive two years later.

Danger from Food.—There is no doubt that coughing in a refectory will easily and frequently lead to the deposition of tubercle bacilli on food. Dr. Baston has demonstrated this by employing a mask. This is worn only for an hour a day and that hour the one in which least coughing occurs in each individual case. Despite this precaution the plate is found to have tubercle bacilli deposited on it. In some cases the bacilli are on the droplets of sputum; in others in the thin film spread over the plate.

Protective Influences.—Talking above a whisper always leads to the ejection of bacilli. Whispering does, however, not cause bacilli to be given off. Men with mustaches were found not to give off bacilli. When, following a suggestion of Dr. J. Solis Cohen of Philadelphia the mustaches were waxed, there was no difficulty in demonstrating the exhalation of bacilli. These observations especially serve to show how few protective precautions would be needed to prevent the spread of bacilli broadcast as at present.

Practical Applications.—Dr. Boston is of the opinion that this method of collecting and examining bacteriologically the atomized exhalations from the mouth may be of assistance in the diagnosis of tuberculosis in cases where the sputum can not be obtained. In insane patients, for instance, who refuse to allow the collection of sputum, a culture plate might easily be placed near them. In children in whom tuberculosis of the lungs is suspected at an age before expectoration has begun, the placing of a culture plate before the mouth during an attack of crying may easily lead to the detection of the bacilli if they are present in the mouth secretion.

Prophylaxis in Other Diseases.—It must be remembered that the atomized secretions of the mouth may easily convey other diseases besides tuberculosis. There is no doubt, for instance, that in diphtheria the Klebs-Loeffler bacilli may be ejected from the mouth, just as the tubercle bacilli in tuberculosis. In cases of tonsillitis that are non-diphtheritic, streptococci and other pyogenic cocci may be scattered about. We do not as yet know the germ of scarlatina, but there seems no doubt that an active focus of the microbe occurs in the throat and that it too may be scattered abroad by coughing or talking. Surgeons who have any infective process in their throats may easily introduce infective material into a wound during the course of an operation. Fortunately most of the bacteria contained in the mouth in health are not infectious. The use of a gauze mask is, however, an excellent precaution and it would undoubtedly lower the number of infections that take place during operation, most of which come from some utterly unexplained source.

Diphtheritic Cultures from Throats.—Dr. M. H. Fussell of Philadelphia contributed a

paper on the "Practical Value of Cultures From the Throat" which was read by Dr. Webster of Chicago. Dr. Fussell said that for the purposes of therapeutics and prophylaxis of other people, prompt diagnosis is needed in no disease more than in diphtheria. The early administration of diphtheria antitoxin practically assures a cure. Early segregation means the prevention of the spread of the disease. We now know that the Klebs-Loeffler bacillus is pathogenic for diphtheria. We know too that there are a number of exudates that occur in the throat which are due to some other microbe than the Klebs-Loeffler bacillus and that diphtheria may occur in regions apart from the throat and that the diphtheria bacilli may produce constitutional symptoms without throat exudate. In a word, we are unable to decide clinically on the existence, or non-existence of diphtheria, and must depend on the bacteriological test.

Differential Diagnosis.—Baginsky of Berlin first claimed that diphtheria could be diagnosed with absolute certainty only by taking cultures from the throat. His opinion in this matter met with a good deal of opposition at first. There is no doubt, however, that exudates having all the clinical characteristics of true diphtheria pseudo-membrane may occur in the throat without the presence of diphtheria bacilli as a causative agent. On the other hand, no clinical description can be given that will enable the practitioner to pick out the cases that are not diphtheria from those which are virulently diphtheritic. Our only resort, therefore, is the bacteriological diagnosis.

Latent Diphtheria.—Many years ago Jacobi of New York, with wonderful acuity considering the conditions of our knowledge at the time, declared that more diphtheria was walking the streets than was confined to beds. There is no doubt that very many cases of sore throat for which patients receive very little treatment are really due to diphtheria. It is the presence of these cases in a community that keeps the disease alive and continues to spread it. As a rule, physicians do not care to even hint at diphtheria unless there is a severe illness. Hence the question of taking cultures from the throat in all cases of sore throat meets with no little opposition from doctors. In Dr. Fussell's own district the practice of taking cultures has been discontinued to a large extent, because doctors do not wish to inconvenience themselves nor to put their patients to the inconvenience of confinement to their houses until diphtheria bacilli have disappeared. However, there is absolutely no other way of protecting the community.

Patients' Own Benefit.—Besides benefiting others, patients themselves are benefited by the practice of taking cultures. True diphtheria may begin with very few symptoms, be clinically unrecognizable for several days and

then light up with a virulence that makes it fatal almost before anything can be done. On the other hand, tonsillitis may be very severe, simulate diphtheria very closely, give the family great uneasiness, and yet prove to be non-diphtheritic. Even mild diphtheria should be treated at once by diphtheria antitoxin. Severe tonsillitis, non-diphtheritic in character, will not receive the slightest benefit from the antitoxin.

Supposed Pathognomonic Signs.—It has been claimed at times that the diagnosis of diphtheria could be made from the character of the exudate in the throat. It is sometimes said, for instance, that non-diphtheritic membrane can be detached from the mucous membrane without leaving a bleeding surface underneath it. In diphtheria the exudate is hard to remove and always leaves an ulcerative bleeding patch. Dr. Fussell detailed some cases in which these supposed pathognomonic symptoms proved misleading. Particularly is it true that non-diphtheritic exudate may cling very pertinaciously and leave a small ulcer when detached. Dr. Fussell suggests that each physician should have a small laboratory of his own at home in which these cultures can be made, unless the Board of Health of his district will do the work for him.

Persistence of Diphtheria Bacilli.—Dr. Delancey Rochester of Buffalo said that it was surprising how persistently the diphtheria bacilli cling to the throat, after they have once secured lodging there. As long as the diphtheria bacilli remain there is danger of spreading the disease. Patients should not be permitted to associate with other people merely because they have no clinical symptoms, unless it can be shown that there are no diphtheria bacilli in their throats. To demonstrate this the taking of cultures is absolutely indispensable. For the removal of bacilli from the throat, Dr. Rochester used to employ Loeffler's solution. Little patients objected to it so much that he used it on his own throat and found it extremely painful. Since then he has not employed it.

Nitrate of Silver Applications.—Dr. Rochester has found the application of a solution of nitrate of silver, stronger according to the age of the child and its insensitiveness, an effective measure for the early removal of bacilli from the throat. As is well known, nitrate of silver produces very little inconvenience. This is applied once a day for some days and a reduced solution of hydrogen dioxide is directed to be used every three hours. This method of treatment soon disposes of bacilli that may happen to be present in the throat.

Milk and the Spread of Diphtheria.—Dr. Newton of New Jersey said that in a recent epidemic of diphtheria all the cases occurred in families who were taking milk from one dairy. The health inspector made an investigation at the dairy and found that two of the

employees, who had suffered a short time before with some slight clinical symptoms of throat trouble, still harbored bacilli in their throats. He even found the probable source of this diphtheria was the handling by these men of bottles collected from infected cases. These bottles were not washed at once, but were allowed to collect for some time, until a sufficient number was obtained to make their cleansing by steam more inexpensive than if each group of bottles were disinfected when collected.

Precautions Taken.—As soon as the dairy was closed no new cases of diphtheria occurred. The habit of collecting bottles from houses infected by diphtheria, or any other contagious disease was forbidden. Beyond this it was required that whenever throat symptoms, no matter how simple in character, developed in any of the employees, the individual should not be allowed to handle the milk, unless after bacteriological examination it should be determined that the throat affection was simple and non-contagious. It seems probable that a good many more epidemics are spread by neglect in dairies than is usually thought. We have come to realize in recent years that typhoid fever and scarlet fever, as well as diphtheria, are apt to follow certain lines of milk distribution. The employment of proper precautions will prevent this.

Cold and Bacteria.—Dr. Newton said that this epidemic of diphtheria would probably have been much more widespread and virulent, but for the fact that all the milk collected at this dairy is cooled to 40° F. as soon as possible after collection. At a temperature of 40° F. very few bacteria propagate. Diphtheria bacilli fail to grow almost completely. The fact that some cases of the disease occurred, shows that all reproduction is not prevented. It is possible that the reproduction took place even during the short time after milking, before the milk was put on ice. Where this precaution of cooling the milk almost at once is not taken there is great danger of wide distribution of infectious material.

Public Prophylaxis.—Dr. Little of St. Louis said that public prophylaxis of disease should be the watchword of the medical profession of the present day. It requires special effort, but this effort is well rewarded. Unfortunately, our boards of health are too often in the hands of politicians and political influence is brought to bear to prevent the impartial working of the law. The medical profession must rise above these untoward influences, and we must use the means that bacteriology has given us for the prevention of disease. The bacteriology of diphtheria is the most helpful contribution to medicine that the related science has brought us. By learning its practical application we will probably be able early in the present century to do away with most of the epidemic diseases.

Genito-Urinary Examinations.—Dr. Ferdinand C. Valentine of New York read a paper on genito-urinary examinations, as they can be made by the general practitioner. This he illustrated by a series of demonstrations on selected patients. He said that most of the genito-urinary examinations are entirely within the scope of the general practitioner's work. Only exceptionally is a trained urologist needed. Dr. Valentine then proceeded to show what he considered the essentials of a genito-urinary examination.

Symposium on Pericarditis.—Dr. Frank Billings of Chicago detailed a series of cases in which the diagnosis of pericarditis was made only postmortem. These cases illustrate the difficulty of diagnosing the condition and the possibility of its escaping notice even where careful methods of diagnosis are in vogue. In one case the patient was suffering from emaciation when admitted, was feverish and breathing very rapidly. The pulse was 120 and weak and irregular. As the patient remained in the hospital, the breathing became shallower and faster. The heart area was overlaid by emphysematous lungs, so that the usual heart dulness was obscured. This took away the principal physical sign of pericarditis.

Etiology.—This patient suffered also from some swelling of the wrists and ankles that seemed to be purulent in character. The removal of fluid from one of the joints showed the presence of biscuit-shaped diplococcus and some staphylococci. The patient was also suffering from a slight urethral discharge in which gonococci were found in the form resembling the biscuit-shaped diplococci of the joints. The temperature became remittant, rising as high as 104.4° F. in the evening. The patient gradually grew weaker with a pulse at 140 and the respiration at fifty-six.

Ante- and Postmortem Diagnosis.—The antemortem diagnosis had been septicopyemia, complicated by endocarditis with the arthritic involvement probable as gonorrheal complications. At the autopsy there was found, in addition to this, a sero-fibrinous pericarditis with a large amount of fluid in the pericardial sac.

Pleurisy and Pericarditis.—In another case the symptoms of pleurisy were detected on the left side, pulsus paradoxus developed and the patient became so uncomfortable that the pleuritic effusion was drawn off. A considerable amount of discolored fluid was withdrawn from the pleural cavity, containing an almost pure culture of the colon bacillus. The fluid reaccumulated several times and was withdrawn, each time becoming clearer in color and also sterile, the bacillus coli communis having disappeared. Notwithstanding the withdrawal of the fluid from the pleural cavity, the patient continued to grow worse and finally died. At the autopsy the pericar-

dial sac contained a large amount of clear fluid.

Pathognomonic Symptoms of Pericarditis.—Dr. Billings said that there are no genuinely pathognomonic signs of pericarditis. The most significant physical signs are the extension of the dulness far to the left and to the right and the fact that the apex beat is distant from the left border of heart dulness as it can be demonstrated.

Pathology of Pericarditis.—Dr. Joseph McFarland of Philadelphia discussed this subject. He said that at the origin of medicine, heart disease was supposed to be incompatible with life. The heart as the origin of life and its disease were supposed to be instantly mortal. Galen noted the existence of pericarditis in animals and inferred its occurrence in man. Some of the old chroniclers referred to the hairy hearts of heroes, and it seems not improbable that the reference is to the stringy fibrin that would be found in the case of old fibrinous pericarditis.

Occurrence of Pericarditis.—The disease occurs at all ages though more frequently in adult life and attacks males more than females. Barthez and Riet found the proportion in a series of cases 21 males to 3 females. Bamberger found 33 males to 25 females. Simpson found 35 males to 28 females. All conclusions favor the preponderance of the disease in males, probably because they are more liable to the exposure and accidents which lead up to the disease.

Pericarditis, Primary and Secondary.—Primary or idiopathic pericarditis is still supposed to exist. The name is retained for such cases of infection of the pericardium that occur through a lesion which can not be found. As a rule, pericarditis is secondary and occurs as the result of the metastasis of infective agents. These agents may come either through the blood or the lymph.

Lymphatogenous Pericarditis.—This form of the disease occurs as the result of the extension of an inflammatory process from some neighboring focus or from trauma in the vicinity or as the result of foreign bodies in the stomach or esophagus or by the burrowing of an abscess from the lungs, or as the result of the pressure or rupture of an aneurism of the aorta. Or it may occur exceptionally by the burrowing of infectious agents from the skin surface in the precordial region.

Hematogenous Pericarditis.—This may occur in the course of any infectious fever. It is especially liable to occur in rheumatism or in scarlet fever. The proportion of cases in rheumatism in which pericarditis occurs varies very much according to different authorities. One French authority states that as high as 85 per cent. of cases of rheumatism are complicated by pericarditis. Bamberger found that about 30 per cent. of cases of rheumatism under his observation developed some symptoms

of pericarditis. One observer has found as low as 5 per cent. of rheumatic pericarditis. It occasionally occurs during gonorrheal rheumatism, and develops more frequently in the course of polyarticular than in monoarticular rheumatism.

Rheumatic Pericarditis.—Dr. MacFarland said that it should be borne in mind that the cause of rheumatism has especial affinity for the inner and outer linings of the heart. Pericarditis for instance may occur before there are any rheumatic symptoms in the joints. Rheumatic pericarditis may develop and run its course without any symptoms of rheumatic arthritis accompanying or even following it. In these cases, of course, the diagnosis may easily be missed and the occurrence of fever without good cause should lead to the careful examination of the heart region.

Scorbutic Pericarditis.—Scurvy may cause hemorrhages into serous cavities and these are liable to become infected. The pericardial sac is no exception to this rule and scurvy is a very prominent cause of pericarditis. It leads to the effusion of a sero-sanguinal fluid within the pericardium. Scurvy may become endemic and practically every case of the disease may be complicated by pericarditis. This set of symptoms would seem to constitute the morbus cardiacus of the older writers.

Pericarditis in Chronic Nephritis.—Chronic kidney disease is very frequently complicated by pericarditis. The reason would seem to be that the deterioration of eliminative processes causes distinct lowering of the resistive vitality. When chronic nephritis gives rise to generalized dropsy there is always an effusion of serum into the pericardial sac. This is not merely a mechanical transudation, but is due also to the fact that the retention of toxic materials in the circulation renders the vascular walls less retentive of the blood serum.

Pericarditis and Microbes.—There is no specific microbe for pericarditis and many forms of micro-organisms enter into its causation. The pneumococcus and Friedlander's bacillus are very prominent factors in etiology and may give rise only to serous effusion. In purulent pericarditis any of the pyogenic cocci may be found, or the pneumococcus or Friedlander's, or the bacillus coli communis. When the fluid within the pericardial sac is hemorrhagic in character, the causes of pericarditis will usually be found to be the tubercle bacillus. Unless, of course, some recent trauma serves to account for the presence of the blood, in the serous effusion.

(To be continued.)

AMERICAN ACADEMY OF MEDICINE.

Twenty-Sixth Annual Meeting, Held at St. Paul, Minn., June 1 and 3, 1901.

A REGISTRATION of 50 and an addition of 48

members represents the cold facts concerning the twenty-sixth annual meeting of the American Academy of Medicine. It thus begins its second quarter of a century under auspicious circumstances. The simple tabulation of statistics, however, does not give the true value of the meeting.

The subjects under discussion consisted first of a Symposium on "Reciprocity in Medical Licensure," in which the trend of thought seemed to be away from pure reciprocity toward a conditional examination of those men moving from one State to another who had already acquired a license to practise by an examination before a State board. It was thought, on the one hand, that it would be almost impossible to so synchronize the movements of the various State boards of medical examiners as to make the examinations practically equivalent; and, on the other, that certain fitness to practise shown by those who had already been in practice should be accepted in lieu of an examination upon the primary subjects, while certain other tests should be applied which could easily be met by any one engaged in active practice if he were at all fit to receive a license.

The other symposium was entitled "Institutionalism," but the papers rather treated of its abuses. They were all suggestive and will form an interesting contribution to the subject. Special mention should be made of a paper by Dr. Hill of Iowa upon the present method of supervising institutions of that State, whereby a commission of three, giving their whole time and receiving a salary from the State, supervise the management of all institutions for defectives. It removes the oversight of these institutions from politics and is working very well.

Another paper by Dr. H. Bert Ellis of Los Angeles describes a hospital in that city owned and controlled by medical men for profit, not philanthropy, which serves as a fair investment for the money and is a great convenience to the profession in that city.

In addition to the papers connected with these symposia were several of great interest, Dr. Cattell of Philadelphia giving the details of the executive management of clinical laboratories in connection with hospitals; Dr. T. D. Davis of Pittsburg, a valuable paper on the necessity of culture studies for medical students; a paper by Dr. P. Maxwell Foshay of Cleveland upon his new method of determining the value of professional services recently outlined in the *Cleveland Journal of Medicine*, and another by Dr. James A. Spalding of Portland, Me., giving the personal experience of an ophthalmologist suffering from a sudden loss of vision and consulting first the optician and then the oculist for aid, showing the inefficiency of the former and the great help which the latter gave him.

The meeting concluded with the usual very enjoyable social session after electing Professor V. C. Vaughan, of the University of Michigan, President.

BOOK REVIEWS.

NURSING ETHICS; for Hospital and Private Uses. By ISABEL HAMPTON ROBB, Graduate of New York Training School, Bellevue Hospital. J. B. Savage, Cleveland.

A CAREFUL perusal of this little work is warmly recommended to all who are already nurses or who intend to venture into the nursing profession, for very rarely have ethical principles been set down in a more attractive and readable style than this well-known author has done. The book will claim the attention of all who open it; doctors will appreciate the ennobling and oftentimes self-sacrificing duties of a nurse; nurses themselves will find much to instruct them and to define their responsibilities, while the probationer will get a clear idea of her work, and, if aware of her unfitness, may rid the profession of an undesirable member. Its adoption among the regular text-books of a training-school is warmly advised.

MODERN SURGERY, GENERAL AND OPERATIVE. By JOHN CHALMERS DA COSTA, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital and to St. Joseph's Hospital, Philadelphia. Third Edition. W. B. Saunders & Company, Philadelphia and London.

WE welcome with pleasure the rapid appearance of this new edition of Da Costa's Surgery. That it has stood the test of time, its popularity among student and physician has shown. The original plan of the work has not been departed from, but, as in the previous edition, it has been found necessary to add considerable new matter to bring it up to the present day. The language is clear and concise, the description of operations to the point and the illustrations, among them quite a number of radiographs, excellent. The book will, no doubt, continue to enjoy a wide sale.

HUMAN PLACENTATION. AN ACCOUNT OF THE CHANGES IN THE UTERINE MUCOSA AND IN THE ATTACHED FETAL STRUCTURES DURING PREGNANCY. By J. CLARENCE WEBSTER, B.A., M.D. (Edin.), F.R.C.P.E., F.R.S.E., Professor of Obstetrics and Gynecology, in Rush Medical College (affiliated with the University of Chicago); Fellow of the American and Chicago Gynecological Societies, and of the Edinburgh Obstetrical Society, etc. A monograph containing 120 pages of text, with 233 illustrations. W. T. Keener & Co., Chicago: 1901.

THIS is a comprehensive but concise study of the human placenta, and presents a full account of the changes in the uterine mucosa and in the attached fetal structures during pregnancy. It is based upon investigations, extending through a period of eleven years, conducted by the author

at the College of Physicians, Edinburgh, McGill University, Montreal, and Rush Medical College, Chicago. He has studied the uterus from actual specimens secured during all the successive months of pregnancy beginning with the second, in the first and second stages of labor, in the third stage (the uterus being secured by Porro-Cæsarian section), and during various stages of the puerperium. Cases of complete abortion in the early weeks of pregnancy have also engaged his attention. For the purpose of comparison the placenta and uterus were examined, in various stages of pregnancy, in the mouse, rat, rabbit, guinea-pig, pig, sheep and cow. The work is a monument of industry and careful, scientific investigation and is a most valuable addition to our knowledge of the subject. The author discusses the observations and conclusions of previous investigations and presents many valuable conclusions, but the book is principally noteworthy as being a repository of facts valuable and pregnant with future suggestion.

THE YEAR-BOOK OF THE NOSE, THROAT AND EAR. Edited by G. P. HEAD, M.D., and ALBERT H. ANDREWS, M.D. The Year-Book Publishers, 100 State street, Chicago, 1901.

THIS summary of current literature on the nose, throat and ear is well edited and very readable. Its abstracts are carefully made, indicating the main points in leading articles, so that the whole gives the reader a comprehensive survey of the latest additions to each of these fields of study. The arrangement by subjects and regions, giving together all of the same kind and referring by numbers to the Index of Periodicals, which in turn is supplemented by a good general index, is such as to invite to helpful knowledge with little effort. The work serves the purpose of the more formidable Index Catalogue with less cost and greater convenience. The volume is handy. The editors have made it valuable and available for both the general practitioner and the specialist.

BOOKS RECEIVED.

The MEDICAL NEWS acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the MEDICAL NEWS will shortly appear.

CHRONIC URETHRITIS OF GONOCOCCIC ORIGIN. By Drs. J. de Keersmaecker and J. Verhoogen. Translated and Edited by Dr. Ludwig Weiss. 8vo, 250 pages. Illustrated. William Wood & Company, New York.

PRINCIPLES OF SURGERY. By Dr. N. Senn. 8vo, 700 pages. Illustrated. Third Edition. F. A. Davis Company, Philadelphia and Chicago. \$4.50.

UTERINE FIBROMYOMATA. Their Pathology, Diagnosis and Treatment. By Dr. E. S. Bishop. 8vo, 322 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia. \$3.50.

MANUAL OF DISEASES OF THE EAR. By Dr. Thomas Barr. Third Edition. 8vo, 429 pages. Illustrated. The Macmillan Company, New York. \$4.00.